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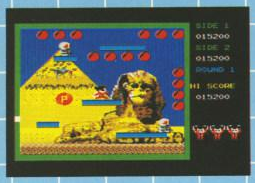

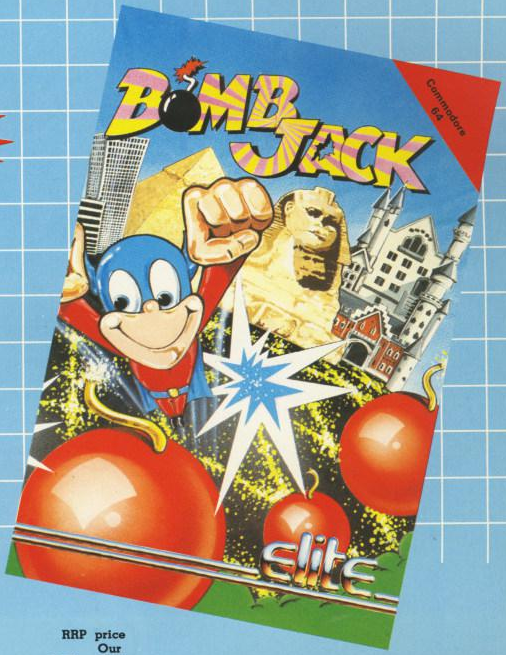

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Editorial

IN THIS month's issue you'll receive a free sixteen-page supplement on the most exciting personal computer in the world — The Commodore Amiga. With its up-to-date central processor system, open architecture, custom graphics and sound chips and powerful optional peripherals, the Amiga is the computer of tomorrow, today — powerful, flexible and affordable.

Affordable, at around £1000? Well, many peoply pay that much for a hi-fi system, or a video camera, or a music syntheiser — and the Amiga is at the forefront of technology in the fields of sound, video and music, as well as computing. For those of you who can only dream, we hope our coverage of the Amiga — which will continue in the renamed Commodore Horizons and Amiga UK from next month — will be of sufficient interest for you to spend some time reading more about the world's best PC.

For those of you who will continue to use the 64, 128, C16 and Plus/4, the future looks just as exciting — stick with us as we continue to explore the world of Commodore computing!

Next Month

CBM music
Sampling, FM and SID

Game Killer
Using the killer cartridge

Plus
News, reviews and contests

EDITOR Christopher Jenkins **PRODUCTION EDITOR** Barbora Hajek **EDITORIAL SECRETARY** Geraldine Smyth **ADVERTISMENT MANAGER** Simon Langston **MANAGING EDITOR** Brendon Gore **PUBLISHING DIRECTOR** Duncan Scot **TELEPHONE (ALL DEPTS)** 01-437 4343 **TELEX** 296275 SUNRGY **UK ADDRESS** Commodore Horizons, 12/13 Little Newport Street, London WC2H 7PP **US ADDRESS** Commodore Horizons, c/o Business Press Int'l, 205 East 42nd Street, New York, NY 10017 **SUBSCRIPTIONS** UK £10.00 for 12 issues, overseas surface (excluding US and Canada) £16.00 for 12 issues, US and Canada airlifted US$33.95 for 12 issues.

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ABC

SUBMITTING ARTICLES *Commodore Horizons* invites readers' contributions, either program listings or articles. Articles should be typed, double spaced with a wide margin. When possible programs should be submitted on cassette or disk with a printout on plain white paper. Please keep a copy of your submission — do not send your only copy. Please enclose an s.a.e. if you wish your submission to be returned. All submissions must be your own original work.

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* Note due to memory limitations ACE on the C16 and VIC20 (+8K Ram) do not have any ground objects.

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Corby factory closes

COMMODORE has announced that the Corby assembly plant is to shut down, putting an end to the manufacture of hardware in the UK. From now on, all Commodore products sold in the UK will be manufactured on the continent or in the United States.

The Corby plant, which opened with the help of government grants 18 months ago, consists of marketing, sales and administration headquarters and an assembly line. It is this assembly line which is to close, with the loss of 250 jobs.

The £6m headquarters will remain, with 170 employees, as a centre for sales, administration and servicing.

Thomas Rattigan, president of Commodore International, said that to meet the challenge of the next two to three years, Commodore would be concentrating on fewer plants using higher technology. Corby, being essentially just an assembly site, did not fit in with this strategy.

Commodore's $113m loss in the year ending June 1985 has led to widespread speculation as to its ability to carry on in the market. The company had forecast a profit for the next quarter, but has now retracted the claim, at the same time as it announced the closure of the Corby factory and a Californian chip manufacture plant. The company's bank debts now total $192m, though there is no indication yet that the company will file for bankruptcy.

In the UK, the company is to discuss with the Department of Trade and Industry the repayment of grants for the Corby factory. Faith in the Amiga still seems high, but the **Which Computer Show** will be a good indicator of likely response to the machine in the UK. Sales in the States have been "at the low end" of the company's expectations.

Ultimate in merger

IN A surprise move, **US Gold** and **Ultimate** have announced a marketing deal which amounts to a company merger.

Although there had been speculation that **Firebird**, which had released the 64 versions of **Sabre Wulf, Underwurlde** and **Night Shade,** night be planning a marketing deal with Ultimate, the news of the US Gold deal was unexpected. The new association begins immediately, with the release of two Spectrum titles, followed by **Dragon Skulle** for the 64. Six further titles are expected during the year.

The tie-up means that Ultimate can now concentrate on the programming aspect of games, while their major weakness, marketing, is taken on by US Gold. Both companies will have their logos on the game packaging.

Elektraglide goes 64

ENGLISH Software has announced the release of its long-awaited Commodore 64 version of Elektraglide.

The "fantasy racing game" incorporates fast-scrolling graphics, impressive music and challenging gameplay. Following closely the Atari version of the game, widely regarded as one of the most impressive Atari titles of 1985, Elektraglide will cost £8.95 on cassette and £12.95 on disk.

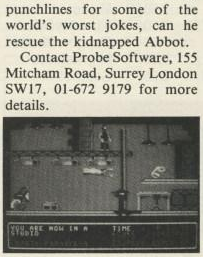
For more details contact English Software, 3rd Floor, 1 North Parade, Parsonage Gardens, Manchester, M60 1BX, 061-835 1358.

Bond is released

The Adventures of Bond — Basildon Bond has now been released by Probe Software. The arcade adventure, based on the character created by comedian Russ Abbott, costs £9.99 on cassetté and £13.99 on disk for the 64.

The game involves secret agent Bond in a quest for thirty sets of clues, hidden in the furniture of a TV studio. Only when he has found the clue, and matched them with the punchlines for some of the world's worst jokes, can he rescue the kidnapped Abbot.

Contact Probe Software, 155 Mitcham Road, Surrey London SW17, 01-672 9179 for more details.



First produces packs

FIRST Publishing has announced a series of packaging deals for its German-produced software products and programming books.

Powerpacks will consist of two or more First products shrinkwrapped together at a considerable saving. Pak One consists of the three programs **PowerPlan, FirstWord** and **FirstBase**, at £59.95, compared with the individual price of £114.

Pak Two includes the **64 Compiler** and **Assember Monitor** for £34.99, as opposed to the normal price of £54.

Pak Three cosists of two books — **Anatomy of the Commodore 64** and **Your 64 Cassette Book** — at £16.95 rather than £26.

For details contact First Publishing, Unit 20B, Horseshoe Road, Horseshoe Park, Pangbourne, Berks, 07357 5244.

Showtime again

THE SEVENTH "official" Commodore Show will be held at the Hammersmith Novotel, London, on May 9-11th.

Opening times are Friday and Saturday, 10am to 6pm, and Sunday 10am to 4pm, and admission fees are £3 for adults and £2 for children. Around 150 exhibitors are expected.

For more information contact the organisers, Database Exhibitions, Europa House, 68 Chester Road, Hazel Grove, Stockport, SK7 5NY, 061-456 8835.

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C128D launched

THE BIRMINGHAM **Which Computer Show** was dominated by Commodore's latest business-oriented machines, the Amiga and C128D.

The price of the C128D, which features a built-in 1571 double-sided disk drive and monochrome monitor, is set at £499, plus VAT.

The C128D is firmly aimed at the business market, and features a detachable keyboard and industry standard 5¼ inch disk drove. The mono monitor has 40 and 80 column capabilities.

Marketing director Chris Kaday commented "With immediate access to thousands of existing CP/M business programs the software base for the 128D is formidable...the machine offers a high degree of functionality at a very competitive price."

Release date is expected to be the end of February.

The Amiga was officially launched at the **Which Computer Show**. For more details see our Amiga UK supplement this month.

Plus/4 revival?

IN THE wake of high sales for low-priced Plus/4 and C16 packages over the Christmas period, more software companies are planning releases for the neglected machines.

ACE, the air combat emulator from Cascade, is to be upgraded; the C16 version will now be accompanied by a full 64K Plus/4 game, incorporating the speech, ground and air targets, refuelling routine and two player option of the 64 version.

Novagen's popular **Mercenary** is set for conversion to the Plus/4; and for the first time US Gold is going into the C16 market with a conversion of the chart-topping **Beach Head.**

We'll be reviewing all the games as soon as copies are available.

Multi-modem

MIRACLE Technology has announced a new package for the 64 and 128. The 64 Multimodem gives access to Prestel, Micronet, Microkink and suitable databases, bulletin boards and electronic mail services.

The 64 Multimodem has all software on-board in ROM, is menu-driven, includes autodial and autoanswer, and supports baud rates of 300/300, 1200/75 and 74/1200. The software is menu-driven and functions include save and print frame, automailbox with edit and save and telesoftware downloading.

The multimodem fits into the 64's cartridge port and has only one external connection, the telephone lead.

Cost is £116,15 including VAT and delivery, and BT approval is expected shortly. Contact Miracle Technology, St Peter's Street, Ipswich IP1 1XB, 0473-216141.

80-column without tears for C128

POTENTIAL owners of the C128, put off by the cost of purchasing the 1901 RGBI colour monitor to obtain the 80-column display, will be pleased to hear of two products designed to let them use cheaper monitors with almost equally good results.

Robtek's **Magic Monitor** cable consists of a DIN plug which connects to the Video OUt of the 128; a D connector for the RGBI socket; and two phone plugs which connect to the monitors audio and video inputs. Using the switch on the D plug, the 40 or 80 column displays can be selected with no further reconnection.

The Magic Monitor interface cable costs £14.95 — considerably cheaper than a £200+ RGBI monitor — and Robtek expect it to sell best to 64 owners who want to upgrade to the 128 without changing their 1701 monitor. For more details contact Robtek at 36 Market Place, Falloden Way, London NW11, 01-209 0118.

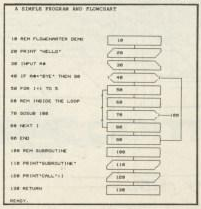
Meanwhile Trilogic has announced a range of monitor interfaces for the 128. The Vidcon 1 RGBI to Composiite video converter allows any monitor or TV to display the 40 or 80 column output for the 128. The unit is mains operated and features an RF output for television, and a composite video and sync output for monitors. Price is £59.95.

The Vidcom 2, at £49.95, is similar but provides only the monitor outputs, so cannot be used with a TV.

Lastly, the Vidcon 3 is a monochrome version of Vidcon 1, giving a clear black and white display at £29.95. Contact Trilogic at the new address of 329 Tong Street, Bradford, BD4 9QY, 0274-684289.

Words and pictures from Supersoft

SUPERSOFT'S latest release in a novel Flowchart program for the 64. **Flowcharter** allows programmers to produce a flowchart from a Basic listing, and display it or print it out to study the program's structure. Recommended printers include the MPS-801, 802, 803, Commodore 1525 or 6, or any Epson compatible dot matrix printer with suitable interface. Flowcharter is an American product, selling in the States for $59.95. Retail price in the UK is £12.95 cassette or £14.95 disk. For more details, contact Supersoft, Winchester House, Canning Road, Wealdstone, Harrow, Middlesex, HS3 7SJ, 01-861 1166.



Supersoft has also taken over the marketing of the Print Technik **Video Digitiser** for the 64. This cartridge-based peripheral enables digitised images to be created from any standard video source, such as a VCR or video camera. The digitiser takes four seconds to produce a four-tone scan of 256 by 256 points. Any of the tone levels can be replaced by any of the 64's sixteen colours, and there are full storage and print-out facilities. The Digitiser costs £149.95 with disk software, and a cassette version is planned.

Mail Merge

Send your letters on software, hardware, computing or life in general to Mail Merge, Commodore Horizons, 12/13 Little Newport St., London WC2H 7PP.

What the #?!!#

I WAS delighted to see Michael Peeters small routine to eliminate the dreaded "?" with input statements. (Jan issue).

Unfortunately it does not appear to work for all Commodore 64 computers. Perhaps it is my input of the routine into the computer or could there have been a publisher's error?

T D Gibson
Hamilton
Lanarkshire

OK — we goofed. Line 30 should read INPUT# 1, NAMES. We missed out the hash. The offending typesetter has been shot.

Solving 80-col

IN YOUR January 1986 issue you have two articles relating to the C128 both pointing out the need to purchase Commodore's new 1901 colour monitor to allow use of the 80 column mode.

For any magazine to make mistakes is poor, but for one specialising in the Commodore range it is unforgivable. Surely you would wish to support the new machine rather than put people off buying through ill-informed articles.

I have recently purchased the 128 but certainly would not have done after reading your article had I not already discovered that the RGBI port used for 80 columns has a monochrome composite video output on pin 7. Few business programs using 80 columns need colour and my word processing and database programs will be viewed on the comparatively inexpensive Philips 7502 green screen monitor which produces a very clear 80 column display with sound for around £80.

In order to make life easy I have the 40 column and 80 column outputs connected to a changeover switch, very simple to do for anyone handy with a soldering iron or I am sure most T.V. repair or computer dealers could make the lead cheaply enough.

The connections are given in the 128's manual but note the slight error on page C5, the RGBI port has no audio. Audio is taken from the Video socket (pin 3) and works in both 40 & 80 column modes.

Please, before criticising — CHECK!

N G Adams
Bury
Lancs

POINT TAKEN — but Commodore's own publicity material implies the necessity of the 1901. Fortunately companies such as Robtek and Trilogic are already making interface adaptors which enable you to use cheaper monitors with the C128 in eighty-column modes — see the news page for details. I would have through that the home computer industry should have progressed beyond the stage where owners are required to get the soldering iron out each time they want to get adequate performance out of their latest £200+ purchase.

Plus/4, basically

HAVING just purchased a +4 over the Christmas period, and not being worried about the software shortage, there are a few interesting points which I would like answers to, the main one being "What is Commodore 3.5 Basic" and "why has it not been used before" and why software houses have been slow in writing programs for what seems to be a very advanced basic?

For a person who is trying to master most dialects of Basic, could your recommend a good book on the subject?.

I have just bought my first copy of the Commodore Horizons magazine, and was so impressed I have put in an order for the next twelve months.

Frank Hargreaves
Ellesmere Port

Basic 3.5 was developed in response to criticisms of the Commodore 64's Basic, which included no specific commands for sound and graphics. On the C128, yet another dialect is used — the more advanced Basic V7.0.

Software houses of course write in machine code rather than Basic, because it's a lot faster and more efficient, so the quality of a machine's Basic rarely affects them. To learn more about the C16 and Plus/4's Basic, try *The C16-Plus/4*, by Brian Lloyd, and *The Working C16* by David Lawrence, both publicised by ourselves; and look out for *The Plus/4 Programmers' Reference Guide*, soon to be published in the States by Scott, Foresman & Co. No further details on this one yet, but we expect a UK edition will arrive — eventually.

Taylor Aardvark
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Charts

Top Twenty CBM 64 Games

1	(14)	Commando	Elite	£9.95
2	(10)	Rambo	Ocean	£8.95
3	(1)	Winter Games	Epyx/US Gold	£9.95
4	(NE)	Little Computer People	Activision	£9.95
5	(NE)	Mercenary	Novagen	£9.95
6	(5)	Last V8	Mastertronic	£2.99
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12	(16)	Elite	Firebird	£14.95
13	(NE)	Goonies	Datasoft/US Gold	£9.95
14	(12)	Kik Start	Mastertronic	£1.99
15	(NE)	Transformers	Ocean	£8.95
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3	Enigma Force	Monolith	£9.95
4	Superman	Beyond	£9.95
5	Zorro	US Gold	£9.95
6	Master of Magic	Mastertronic	£2.99
7	Ballblazer	Activision	£9.95
8	Revs	Firebird	£12.95
9	Ace	Cascade	£9.95
10	Zzzzz	Mastertronic	£1.99

Top Three CBM 64 'Non-games'

1	(—)	Electrosound	Orpheus	£14.95
2	(1)	Mini Office	Database	£5.95
3	(2)	Music Studio	Activision	£12.95

Top Five C16 Games

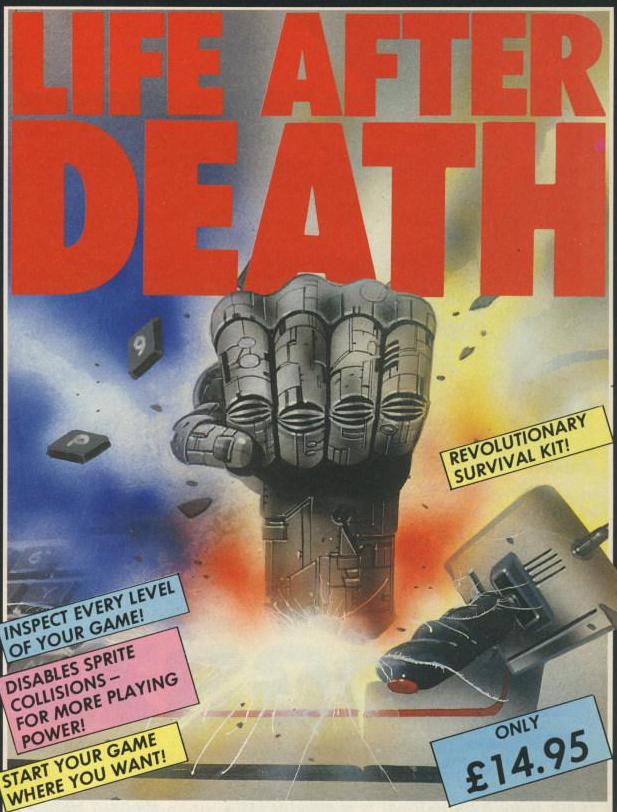
1	(1)	Formula One Simulator	Mastertronic	£1.99
2	(—)	Tutti Frutti	Mastertronic	£1.99
3	(3)	BMX Racers	Mastertronic	£1.99
4	(2)	Squirm	Mastertronic	£1.99
5	(—)	Rockman	Mastertronic	£1.99
6	(B)	Vegas Jackpot	Mastertronic	£1.99
7	(4)	Daley Thompsons Star Events	Ocean	£6.95
8	(—)	C16 Classics	Gremlin Graphics	
9	(5)	Spectipede	Mastertronic	£1.99
10	(B)	Air Wolf	Elite	£6.95

Top Five Vic 20 Games

1	(1)	Crazy Cavey	Mastertronic	£1.99
2	(2)	King Tut	Mastertronic	£1.99
3	(4)	Rockmkan	Mastertronic	£1.99
4	(3)	Rip the Game	Mastertronic	£1.99
5	(B)	Psycho Shopper	Mastertronic	£1.99
6	(—)	Bullet	Mastertronic	£1.99
7	(B)	Doodlebug	Mastertronic	£1.99
8	(5)	Vegas Jackput	Mastertronic	£1.99
9	(—)	Sub Hunt	Mastertronic	£1.99
10	(B)	Duck Shoot	Mastertronic	£1.99

Data compiled by Gallup from a panel of specialist and chain stores, for the month ending December 31st.

KILLER GAME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NEXT ISSUE RUNNERS-UP

Max Headroom 2, by Bob Stevenson, is a multi-frame animation. It's a sequal to Bob's original Max pic on Compunet, and has certainly turned a few heads!

ANIMATION GRAPHICS

The best entries for the Commodore Horizons

Hugh Riley's Bringdown is a sinister little piece in which the passenger's eyes flicker back and forth as the elevator drops them to an unknown fate

Richard Hare's Space Ace is drawn in an impressive comic-book style

LOW-RES

Chris and Ant Wood's Sid is simple yet effective

John Kendrick's highly-detailed landscape of Scarborough shows St Mary's Church and Scarborough Castle. It was drawn using Koala Pad.

S WINNERS

HI-RES

zon:s/Compunet computer graphics competition

Each winner gets a great Wigmore House MS-2000 mouse, with graphic design software. Next month we'll look at some of the runners-up and show you more of what the Mouse can do!

Nigel Taylor's impressionist portrait The Tear displays a bold use of colour and striking composition. Drawn using Koala Pad

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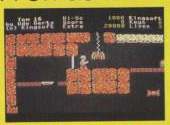

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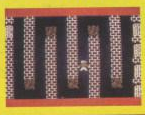

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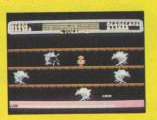

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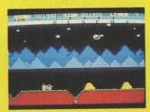

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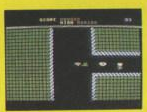

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Jumpers

Above average ladder-and-platforms stuff from Mastertronic, **More Adventures of Big Mac the Mad Maintenance Man**, to give it its full title, looks pretty good for a C16 game.

There are fifteen screens to get through, in each of which

your time is limited by the air level shown at the bottom of the screen. There are stompers, lasers, elevators, pitfalls and more to negotiate, though fortunately the game includes an all-too-rare feature; each time you restart, you can move to any level you have reached before by repeatedly pressing the V key — so you don't have to waste time getting through screens you've already mastered. Good idea.

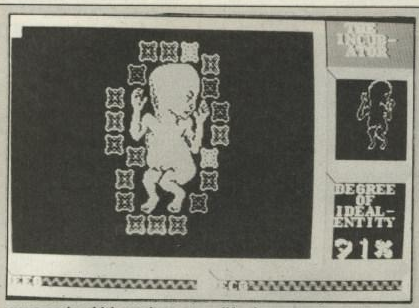
The usual LEFT-RIGHT-JUMP business, but particularly well done.

Program: Big Mac, C16
Supplier: Mastertronic
Price: £1.99
Graphics: ★★★★★
Sonics: ★★★★★
Gameplay: ★★★★★★

From on high

Deus Ex Machina, unjustly ignored when it first appeared on the Automata UK label, is one of the greatest 64 programs ever assembled; more than just a game, it includes a complete musical and vocal stereo soundtrack on a separate cassette, to be listened to in sync as you play the game.

Mel Croucher's vision of a totalitarian future, where the Defect Police root out all deviations from the norm , is the background for a series of half-game, half-"movie" sequences in which you interact with the program to aid the development of an independent life form — from the gene tanks, to the womb, and beyond.



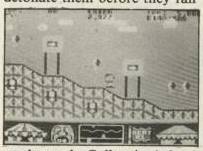
Featuring contributions from Ian Dury, Frankie Howerd, Croucher and, most of all, yourself, Deus deserves a whole article to itself — it's a majestic, mysterious and moving vision, and certainly the sort of production for which home computers are ideally suited. Why are you sitting there? — got out and buy Deux Ex Machina.

Program: Deus Ex Machina, 64
Supplier: Electric Dreams
Price: £9.95
Graphics: ★★★★★★★
Sonics: ★★★★★★★ ★★
Gameplay: ★★★★★★★ ★★

Rollers

Wild Ride is an average game, notable mainly for including a "lodagame" — a small arcade section which you can play as the main game is loading. In this case it's a version of Lunar Rescue, and I suppose future Interceptor titles will feature more of these 1K marvels.

As for Wild Ride itself, it has some very colourful graphics and loud music, and a nice title screen. The plot concerns a clown running around a roller-coaster, leaping over cars, balloons, birds and bolts of electricity in a bid to defeat a mad bomber. A scanner at the bottom of the screen shows you where the bombs have been dropped, and you must detonate them before they fall



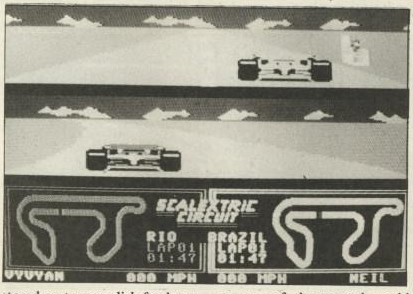
on the track. Collect junk food and balloons for bonus points. 32 levels , very fast and furious, but not wildly exciting. Nice cartoon-style graphics promise better things to come, though.

Program: Wild Ride, 64
Supplier: Interceptor
Price: £7.95
Graphics: ★★★★★★
Sonics: ★★★★★
Gameplay: ★★★★★

Into gear

Scalextric is a very well-programmed package, and brought back memories of happy hours spent playing on the living room floor. Unfortunately, the game is very similar to **Pitstop**, **Pitstop 2**, **Revs**, and several other racing programs, so it may not do as well as it deserves.

The big gimmick is that you can design your own race course, picking different shapes and lengths of track from a menu and combining them into complex patterns which can be stored on tape or disk for later use. Alternatively you can race on one of the several world championship tracks included in the program.

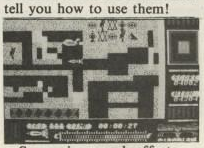


The actual race section, which has one and two player options, is very similar to Pitstop split screen, good scrolling, fair sound effects, and the chance to sideswipe your opponent as you dash for the finishing line. On the whole, very good fun, but badly timed considering the number of racing games already on the market.

Program: Scalextric, 64
Supplier: Leisure Genius
Price: £9.95
Graphics: ★★★★★★★
Sonics: ★★★★★
Gameplay: ★★★★★★

Not quite F.A.B.

Thunderbirds is a reasonable little arcade game in itself, but certainly doesn't do justice to Gerry Anderson's excellent Sixties puppet dramas. In Firebird's game you control Thunderbirds One and Two, swapping control from one to the other by pushing the fire button as you pilot them through a complex of caverns. There are fuel pods to pick up, treasures to collect, and sliding blocks of stone to move as you proceed in y our quest for some missing archaeologists. There's an equipment screen on which you can select supplies such as missiles, acid and explosives, but nowhere do the instructions tell you how to use them!



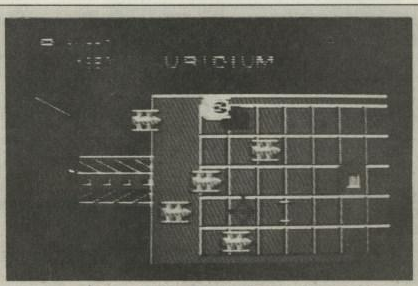
Some nice speech effects — "Thunderbirds Are Go!" — but a poor version of the familiar theme music. All in all, a waste of an opportunity to write a marvellous Thunderbirds game.

Program: Thunderbirds, 64
Supplier: Firebird
Price: £3.50
Graphics: ★★★★★
Sonics: ★★★★★
Gameplay: ★★★★★

Spaced out

The space blast is not dead! Just when you thought it was safe to go back into the cosmos, Andrew Braybrook's mega zapper Uridium tears into view.

Using the same hard-edged graphics style which distinguished **Paradroid**, Uridium is an unashamed arcade extravaganza in which your task is to fly-by alien battlecruisers, blasting all the surface features and fighters. Your aim is to survive the attacks of the fighters, mines and homing missiles until



you get to the wave bonus screen. Here you must hit the fire button as bonuses flash up, then fly past the disintegrating battlecruiser zapping all the remaining targets.

Excellent theme music and sound effects, brilliant sprites and frantic action make Uridium a winner — twenty-five levels of sheer excitement as your spacefighter performs incredible flips and rolls under your command. The best pure arcade game for aeons.

Program: Uridium, 64
Supplier: Hewson
Price: £8.95
Graphics: ★★★★★★★★
Sonics: ★★★★★★★★
Gameplay: ★★★★★★★★

Fractal caverns

Fourth of Activision's games from Lucasfilm, **The Eidolon** is as graphically impressive as **Ballblazer**, **Fractalus** and **Koronis Rift**, but has a little more to it in the way of plot. Reminiscent of Wells' *The Time Machine*, the scenario has you exploring underground

complexes drawn with impressive fractal graphics, in search of energy sources and treasures.

There are several types of energy balls which you must capture or avoid as appropriate, and beautifully-drawn monsters to fight off. Each level presents its own problems to solve as you move through the tunnels, and at the end of each is a dragon which you can defeat only after much experimentation with the energy balls.

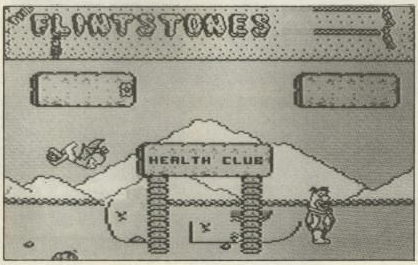
Excellent graphics and nice Philip Glass-like intro music, though without playing all the way through to the fabled seventh level it's hard to say whether the initial interest will last.

Program: The Eidolon, 64
Supplier: Activision
Price: £9.99 cass, £14.99 disk
Graphics: ★★★★★★★★
Sonics: ★★★★★
Gameplay: ★★★★★★★

Rubble

Some excellent sprite design in this comic arcade adventure, typical of the Taskset design team. Based on the once-popular Flintstones cartoon series, **Yabba-Dabba-Doo** involves you in building a stone-age home and wooing a stone-age wife while facing all those every-stone-age-day problems of dive-bombing pterodactyls, dopey dinosaurs and bouncing boulders.

There are some great animation effects, such as when Fred



Flintstone gets clobbered and sees stars, and the galloping dinosaurs which you must avoid on your trips to the stone quarry, rubble pit, garage and health club.

The ultimate aim is to build a house before your neighbours do, but there are lots of subsidiary tasks along the way — earning money to hire a dinosaur, collecting rocks, finding Wilma and so on.

Good fun, and worth seeing just for the sprites.

Program: Yabba-Dabba-Doo!, 64
Supplier: Quicksilva
Price: £8.95
Graphics: ★★★★★★★
Sonics: ★★★★★★
Gameplay: ★★★★★★

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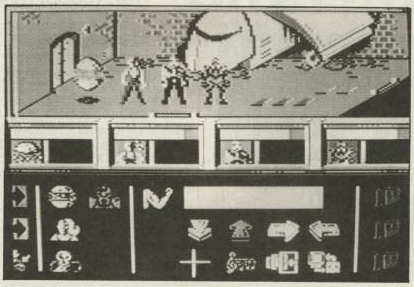


Enigma Force is the excellent follow-up to Beyond's **Shadowfire**. Although it features the same characters and a similar task — the Enigma Force trying to neutralise the evil General Zoff — the sequel relies less heavily on icons. Instead, the top half of the play area is a multi-chamber representation of an insectoid complex through which you must move your heroes.

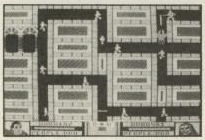
By clicking on particular icons you can select a character, choose direction of movement, issue commands to pick up or use various objects, direct the character to fight independently, call up status indications for your characters, and search out the space ship which will enable you to escape the complex — once you've dealt with Zoff.

Excellent music score, very clever animation and artificial intelligence routines, and a satisfying mix of complexity and clarity make Enigma Force far superior to Shadowfire.

Program: Enigma Force, 64
Supplier: Beyond
Price: £9.95
Graphics: ★★★★★★★★
Sonics: ★★★★★★★
Gameplay: ★★★★★★★

Turkey!

You've read the comic, you've seen the film, now DON'T go out and buy the game. **Superman** is the latest film tie-in fiasco, and Beyond very sensibly refused to send out review copies until now; quite a few of you, I would guess, have been presented with this clunker at Christmas, before having read a decent review.

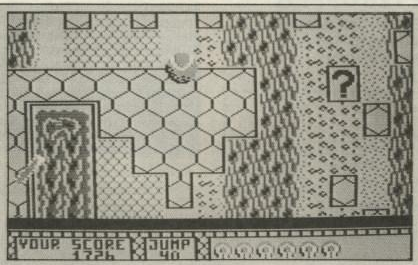


The game represents a series of battles between Supie and sinister Darkseid: you can play either part. The battles take place in six maze-like sections of Metropolis, and in seven "combat zones". So in effect there are eight games to play, each of which is more hopeless than the last. It's really basic stuff; "avoid the lasers", "bomb the city", "dodge the Kryptonite" and so on. There are various objects to find on the maze screen, and complications connected with capturing innocent humans, but why bother to go on? Graphics and sound are uninspired and there's no sense of purpose at all.

Is it a bird? Is it a plane? No — it's a turkey.

Program: Superman, 64
Supplier: Beyond
Price: £9.95
Graphics: ★★★★★
Sonics: ★★★★
Gameplay: ★★★★

Boing!



Very whacky indeed, is the best way to describe **Bounder**. I mean, how many games cast you in the role of a tennis ball (apart from **Mutant Tennis Balls Battle at the End of Time**)? The game area is viewed from above, so the tennis ball bounces towards and away from you. Your job is to direct it, jump by jump, across a complex grid of platforms, avoiding mountains, monsters and deadly falls. There are bonus squares, landing on which can give you extra lives or result in you being gobbled up. Arrowed squares give you an extra long bounce to help you avoid mountains or make tremendous leaps through space.

At the end of each round you have a chace to hit bonus squares, and another bonus is given according to how few bounces you used. As the game progresses the grid becomes more complex, and the monsters faster and more numerous.

Excellent game.

Program: Bounder, 64
Supplier: Gremlin Graphics
Price: £8.95
Graphics: ★★★★★★★
Sonics: ★★★★★
Gameplay: ★★★★★★★★

Magical

A very clever combination of arcade and adventure features, **Master of Magic** is also distinguished by Rob Hubbard's latest musical masterpiece — this time the SID chip seems to produce around eight voices in an atmospheric, complex mediaeval soundtrack.

The screen is split into several areas: a map section which scrolls in all directions, showing your present location, tunnels and passages and objects present; an explanatory text section; a command menu; and a graphics section.

Your task is to find a potion of immortality, moving around the caverns picking up weapons and spells, fighting off monsters, running away when appropriate, and conserving

your mind power until it is necessary to cast a particularly powerful spell.

Complex and enjoyable; a great "adventure" for people who normally wouldn't play adventures!

Program: Master of Magic, 64
Supplier: Mastertronic
Price: £3.50
Graphics: ★★★★★★
Sonics: ★★★★★★★★
Gameplay: ★★★★★★★★

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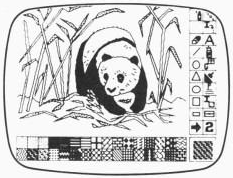

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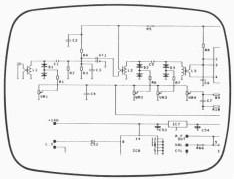

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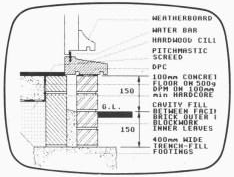

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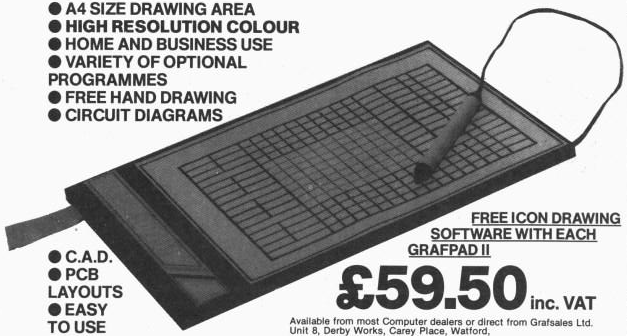

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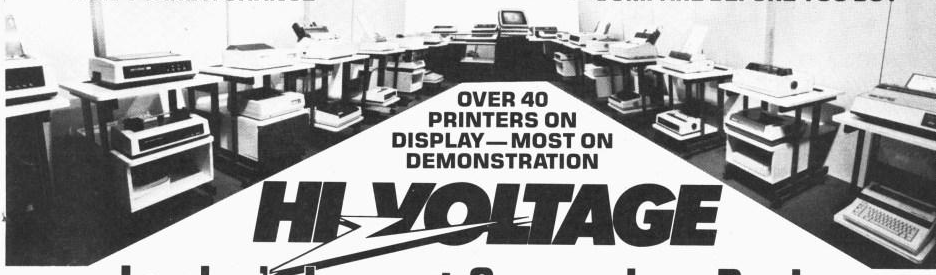

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DISC TO DISC: It is possible to make a self contained back up of disc based programs that will both **load at high speed** and **allow the rest of the disc to be used as normal**

TAPE TO TAPE: Tape back ups can be made at turbo speed with just one tape deck.

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In fact "Freeze Frame" is the **ultimate utility**. It works on the program in memory and allows you to make a back up of that program onto tape or disc. The beauty being that the saved version is fast loading and in the case of disc backups no longer has drive damaging DOS errors. The process is **completely automatic** no knowledge of BASIC or machine language is required, just follow the prompts and the simple instructions for **amazing results**.

"Freeze Frame" is a hardware "device" that plugs into the cartridge port of the '64. It does **NOT** dump the entire contents of memory, just the **working program and parameters**. Programs converted run **independently** of the hardware. It is also compatible with the 128 in 64 mode and 1570 disc drive. In tests "Freeze Frame" has proved 100% succesful with software tested.

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WARNING: Don't be misled by other adverts. If you want to transfer turbo load programs to disc, software only utilities are inadequate. They suffer from a variety of drawbacks including poor success rate, awkward to use, greedy on disc space and overpricing.

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plus several other useful utilities. **Disc Disector V4.0** is **menu driven and has its own fast boot system built in for your convenience. Pays for itself the first time you receive it.**

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MINTER MANIA

Once again ***The Hairy One*** *considers the art of ski-ing, art on the Amiga, 64 shoot-'em-ups and plans for the next Llamasoft epic*

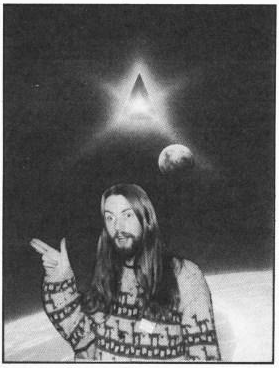
WELL HELLO once again, I'm back in the UK for a bit after me ski hols...they were well good I must admit. We went ski-ing in a French resort called LaPlagne, there wasn't much snow at first but at least there was still ski-ing to be had up the top of the mountain, on the glacier. Me and Tony Crowther went up the pub most nights and got royally smashed and had some excellent chats about software, computers, life, the Universe and everything. Tony took to the ski-ing really well, he hadn't done any at all before we went, and by the end of the two weeks he was pretty good. It started snowing on Christmas Day which opened up the mountain quite a bit, so we were able to hack quite a few interesting runs those last few days. I decided to freak out the French at one stage so I went ski-ing in me jeans, Peruvian T-shirt and Afghan coat which presented quite an unusual spectacle, these French not used to large hairy programmers hackin' it down in such weird togs whilst freaking out to Genesis on the Walkman. There was plenty of wiping-out-at-mach-8 as well, including my best fall of the whole holiday after which I ended up with my head right under the powder snow and just me arms and legs sticking out, wriggling feebly. The resort's really good; you can ski down off the mountain right up to the bar for a quickie before the next descent. The only downer was that the airline lost our luggage on the way back, and before we got it back someone'd nicked my ski boots which were brand new this holiday. Ah well, at least I can claim a new pair on the insurance.

Belgian

We found an arcade with Atari's excellent **Gauntlet** in it, and I'm afraid many French coins disappeared into that monster, it's fiendishly addictive! I even got recognised by a Belgian bloke who had all my games, that did wonders for the ego! Not surprisingly, I met him in the arcade...The place is so good I'm going to go back for a longer stay, and take my Commodore with me to start on my next C64 game, when I get fed up with the coding I'll just pop out onto the piste for a spot of ski-ing. Sounds ace to me!

I've just about done the Atari ST version of **Colourspace** now, and without rabitting on about Atari too much and annoying all you Commodore heads, suffice to say that the ST should not be overlooked if you're looking for an upgrade from 64 and can't afford the awesome Amiga. Forget the little badge saying "Atari" on it, just take a look at some of the things it can do...I think you'll be impressed.

Back to the Commodore, and my fave game of the moment, which is Rino Software's **"Z"**; a scrolling shoot-'em-up in the style of **Time Pilot** and **Xevious**, and which has virtually lived in my 64 just recently. It's a good, solid, unpretentious arcade blast with 4 different planets and millions of aliens for the blasting. There are overtones of **Sinistar** too, in that you



have to collect up 'Energy Bombs' firstly to shot your way into the warp gates that take you from planet to planet, and ultimately to fire in the final confrontation with the mother ship. Hint: when you meet Big Mamma keep a toe on the space bar, concentrate on running just ahead of Mama and loose off the Energy Bombs with your foot. Or get a mate to be ready on the space bar during that critical phase.

"Z" was coded by the same guy who did Alligata's Hyper Circuit and the style of graphics and scrolling are pretty similar, but the gameplay is, in my opinion, quite a bit better; at least "Z" hangs around in my Commodore quite a bit longer than Hyper Circuit used to. It's really nicely presented, too, with a little demo of each stage. Very much a dedicated Arcader's blast and most enjoyable. As a matter of fact writing about it has whetted my appetite for some more, I shall boot it up when I've finished writing this.

On the Amiga front, I've now got a little more stuff, including Commodore's own **GraphiCraft** art program. Some of you may have seen the Egyptian mask demos from this on Micro Live recently. They're really good, but I like making 'lightpipes', weird continuously-moving abstract designs you get by using the package's Animate Pallette and Mirror commands. Overall, though, the package is not as nicely designed as Atari's excellent **NEOchrome** software for the Atari ST. However, Electronic Arts' **Deluxe Paint** is coming soon and from what I've heard it should be truly excellent.

While on the subject of Electronic Arts, I got a demo of theirs the other day called **PolyScope**, which purports to be an "interactive painting program currently evolving at Electronic Arts", and to generate the kind of effects you might find "at the best laser lightshows". It works by taking basic shapes and moving them around so they leave multicoloured trails whilst in various symmetry modes. Does this sound a little familiar? Perhaps it started "evolving" shortly after I sent demos of Psychedelia and Colourspace to Electronic Arts? Hmmm...anyway I've seen it and I'm not worried. Pretty it is for sure; Colourspace it certainly aint. Hehehe...

I've also seen a static screen from **Marble Madness**; you can't tell it from the arcade version. And I've got a weird and wonderful abstract game being developed by Synapse called **Wynd Walker** that's got some mindblowing sonix in it, especially if you listen with 'phones on. It's being said that Synapse intend to package the game with a set of 'phones, a 'sound' move I should say, I'll be first in the queue for a finished version when it's released.

Hopefully the current lack of Amiga stuff shouldn't last long, and some of the stuff in development looks like it's gonna blow minds. Pity the Amiga's just so damn expensive.

I've got the design sussed for me next Commodore game now, I expect to start writing it the end of January when I've got the ST Colourspace all wrapped up. I'm looking forward to getting back into the Commodore scene, I haven't uploaded a demo onto Compunet for ages I've been so out of touch. I still go online an awful lot and it seems to be getting busier, there are a lot of people who come on over Christmas. Partyline's runnin now and works well but it's a bit expensive; I still love good old ordinary Chat. I'm still ploughing thru me mailbox at the moment, I came back off hols and had 7 flippin' directories of stuff waiting for me!!

Fish

I went to see Marillion last night and they were just amazing. Go and see them if you get the chance; you'll not regret it. I once met Fish at a computer show in Birmingham, he's a good bloke, likes **'Revenge'**, too! Tony met him at the same show, and challenged him to a drinking contest!!! Imagine — a drinking contest with Fish!! He never stood a chance...

While on the subject of music, I must instruct everyone to 'Rush' out and buy **'Power Windows'**, Rush's latest. It is awesome, their best album of the past few years. Coincidentally, Microsoft had these massive adverts up at the show in Las Vegas advertising their 'Windows' Macalke operating system, huge ads with 'Microsoft Pesents Power Windows' on them. Maybe someone in their advertising department's a Rush fan?

I'd better go now, it's getting late and it's time to put on another CD. I shall pause only to say 'Hi' to the American bloke I met in Las Vegas who imports CH apparently just to read my column, he he ego trip again! This is the Yak at 1.37 am Friday 10th Jan, Zowies and out, seeya next month... ■

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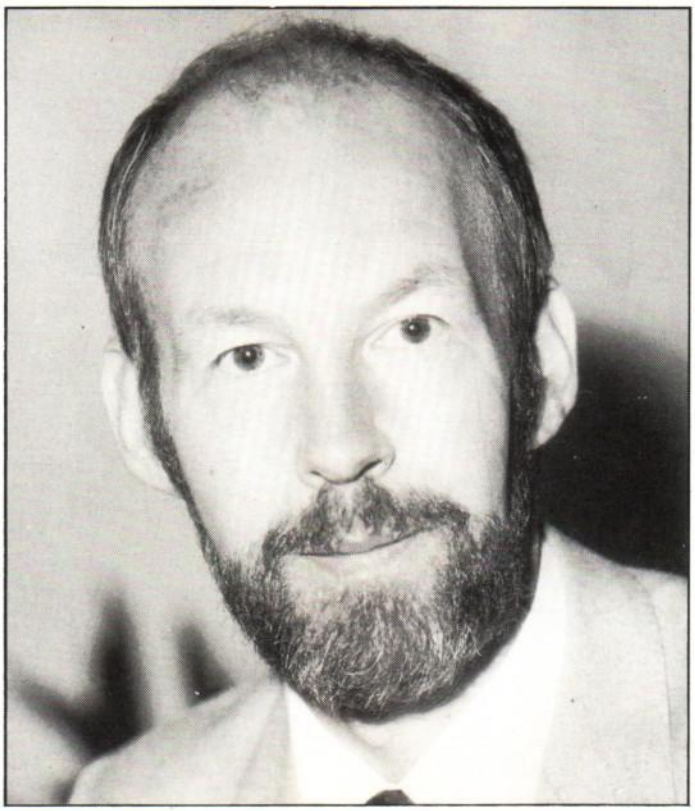

FEW people can argue that the real key to the growth of the computer industry following the introduction of the micro has been innovation. It is therefore all the more ironic that the current obsession with standards, coupled with a widespread reticence to adopt new technology, seriously hampers the successful introduction of a new computer.

However, we also know that one of the main causes of the current slow down in penetration of the personal computer market is the failure of the industry, (and that means we, the manufacturers) to convince the non-user that computers are easy to use and can provide real productivity benefits.

It is against this background that the **Commodore Amiga** will be launched, with its unprecedented multi-tasking capabilities, windows management, fast processing speed and superb colour graphics. These facilities, amongst others, will excite both user and non-user alike to the new opportunities that computers can deliver, and we believe that the Amiga will indeed set a revolutionary new standard, in that the PC can be not only practicably valuable, but stimulating to use.

The early establishment of a sound software base is always a problem for new machines, and here the Amiga has got off to an excellent start with a wide range of utilities, horizontal and vertical market applications already nearing completion. There will be a variety of word processors, spreadsheets and database offerings, together with application packages in desk-top publishing, advertising and design, CadCam, catering, farming, transport, avionics, that motor trade and many, many others.

With its video interface and graphics, the Amiga is already being seen as an important development in the educational market, with machines being evaluated by a number of leading universities.

The Amiga is also an extremely effective low cost graphics terminal and there are several significant programs underway in this area.

Since the Amiga's unique capabilities will take some time to be realised, and to meet the need to innovate within the standard, there is also an MS DOS Emulator capable of running the most popular IBM compatible programmes.

Let us hope however, that this will not be the sole criterion on which the Amiga will be judged. Economical IBM-compatibility is one another. After all, why buy a Mini when you can get a Ferrari for the same price? Our case rests!

CHRIS JENKINS editor, Commodore Horizons

WELCOME to our free Amiga supplement — our way of introducing you to Commodore's revolutionary new machine, and to our plans for the future of *Commodore Horizons* magazine.

As Commodore's marketing director Chris Kaday says, it's important to realise that the Amiga is not just a business machine, and not just an overpriced games machine. It's an applications PC, and is destined to become the favoured electronic tool of many amateurs, semi-pro's and professionals in the fields of graphic design, engineering, planning, video technology, sound synthesis, and many fields which we cannot yet imagine.

Commodore Horizons will keep you up to date with all the latest developments in the Amiga market, explaining the advanced technology involved, the capabilities of the software and how some of the most astounding effects are achieved. We know that many of you will be happy to stick with your 64's or 128's, and of course we will not be cutting down on our coverage of these best-selling machines; but from next month, in the new-look *Commodore Horizons and Amiga UK,* we'll be affirming our commitment to Commodore and the PC of the future, the Commodore Amiga.

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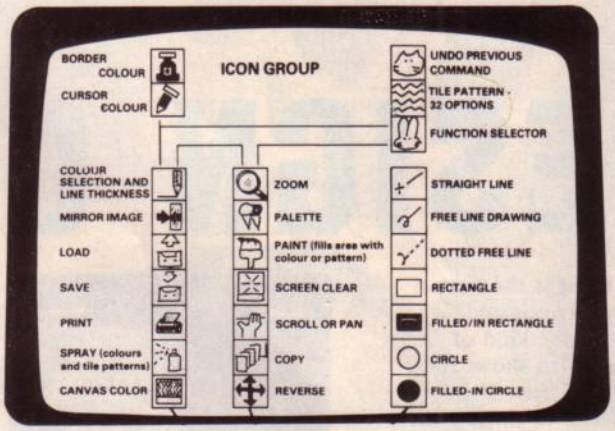

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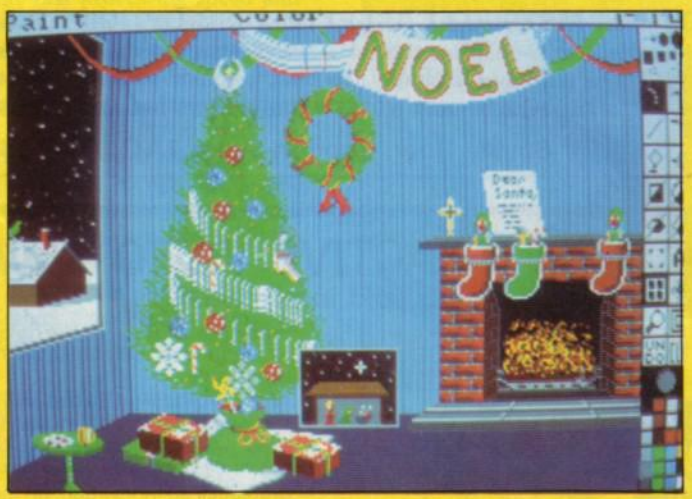
DESIGN COUNSEL

Deluxe Paint is the first commercially released example of the kind of program which shows the Amiga at its best. If this review seems at times a little over-enthusiastic, perhaps I should explain that when Deluxe Paint was first demonstrated in this country, to an audience of competing software developers, it was greeted with outbreaks of spontaneous applause. The applause was deserved.

- PACKAGE: DELUXE PAINT
- PUBLISHER: ELECTRONIC ARTS
- PRICE: TBA
- MACHINE: AMIGA 256K (extra facilities available on 512K machines)



The simplest description of Deluxe Paint is that it is another "paint" program, with all the facilities that would be expected of something developed two years after Macpaint set the standard for personal computers. The power of Deluxe Paint derives not so much from extra facilities (though there are quite a few) but from the full integration of all its talents, as we shall see later.

Like any competent "paint" program, Deluxe Paint comes equipped with a variety of line and shape building tools. Straight or freehand lines, circles, ellipses, rectangles and polygons (filled or outline) can all be created using a variety of built in brush shapes selected from the control panel. The thickness of the lines involved can be varied, either by swapping built-in brushes or by the facility to change the size of any brush picked up from the menu. In addition to lines and shapes, text can be added to designs in a variety of fonts. As in previous paint programs the user always has the option to "undo" the last action performed or to clear the whole screen.

Other "standard" features include the ability to magnify a portion of the design and work on it in enlarged mode for more precise control — the degree of magnification can be varied to suit the needs of the particular design. A powerful set of symmetry facilities allows the user to draw on the screen and see the material duplicated so as to create symmetrical patterns in a variety of styles.

For precise work an invisible grid can be imposed on the screen so that lines and shapes generated will begin only at grid points. Unlike most previous programs the space between the grid points can be set by the user before commencing a design or even during the course of it. If the grid does not provide sufficient accuracy, a menu option is provided which displays the screen co-ordinates of the cursor or, when a shape is being created, the position relative to the start of the shape. Using the co-ordinates facility all of the line and shape tools can be used with individual pixel precision.

As expected with a machine like the Amiga, all the facilities provided on the control panel can be obtained in a variety of colours. In the normal "low resolution" mode of 320*200 pixels, 32 separate colours can be used in a single design. Which 32 colours is for the user to choose using a simple colour palette facility which allows colours to be mixed and shaded within the range of 4096 colours that the Amiga is capable of producing. Higher resolution is available in the form of a 640*200 mode giving 16 colours on a 512K machine or four on a 256K model. Finally, for 512K machines only, a high resolution 640*400 mode is available, still with 16 user-definable colours. Portions of pictures can be loaded into other designs, provided that the resolution is the same and a special colour remapping option allows the user to specify how the colours in the fragment being loaded are to be adapted to the possible quite different palette of the current picture.

One of the most useful features of any paint program is the ability to "select" areas of the screen for deletion, modification or copying to other locations. In the case of Deluxe Paint the range of operations is more extensive than most. The content of the selected area can be moved, shrunk, enlarged, stretched, curved, flipped horizontally and vertically, rotated through any angle or saved to disk.

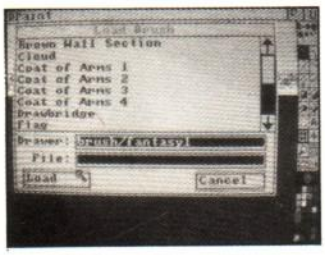
What sets Deluxe Paint off from other packages, however, is the capability that it gives to the user to treat a selected screen area or object as if it were a normal paint brush selected from the control panel. Any shape on the screen can be picked up and used as a brush, regardless of its complexity or the number of colours involved. The illustration shows a simple example of a line of coloured blobs picked up and used to paint a rainbow with a single stroke.

The integration of Deluxe Paint begins to show when we go beyond the simple use of an object as a brush to more complex actions. Deluxe Paint has a fair range of shape-making abilities — all of them can be used with the user defined brushes. The user can pick up a block of letters from the screen and then draw a line composed of those letters. If a complex multi-coloured shape is being used as a brush to create

DELUXE PAINT on the Amiga; stunning graphics software for the new generation of personal computers.
This image of the Tutankhamen mask exploits the Amiga's 640 x 400 pixel mode, using 16 colours and Deluxe Paint's advanced brush routines.

special effects, the program will just as happily draw lines, dotted lines, circles and polygons with that shape as with a brush shape chosen from the control panel.

It is quite impossible to describe the variety of effects which can be achieved using the flexible brush definitions combined with varied shape-making tools. Many of the effects are quite unexpected, though obvious once experienced. To create a regular network of lines on the screen, simply create a single square, set the grid facility to give the correct spacing and paint the square all over the screen using the dotted line tool — hey presto.



So much does effective use of Deluxe Paint rely on the use of different brushes that not only can whole designs be stored on disk and retrieved later, so also can individual brushes. Specialist users will quickly build up a library of useful brushes and shapes which can be quickly incorporated into successive designs. The disk supplied contains, among many others, the example of a bare room and a set of Christmas-type objects stored as brushes. Shown below is an example, created in a few minutes, of the flexibility inherent in shape storage. Every feature of the room apart from the floor, walls and the scene outside the window, is a separately stored brush — including the animated flames in the fireplace.

One further strength of the package is the range of "modes" in which can be used to determine how a brush will affect what is already on the screen. Using the modes it is possible to place the brush on the screen "as is", as a single colour outline, the background colour in the rectangle surrounding the brush shape can be made transparent, the brush can be used to "smear" colours already on the screen as if they were being rubbed with a finger, to shade them slightly without having to go to the colour palette or even to "blend" colours so that rubbing the brush over the border between two colours leads to the colours blurring into each other.

No discussion of modes would be complete without mentioning "cycling", which allows a range of colours to be defined in the palette and then cycled so that each colour within the range changes at regular intervals, taking on the colour of its predecessor. Cycling can be used to achieve a variety of effects from hypnotic patterns to very simple animation.

It will be clear from what has gone before that I have very few reservations about Deluxe Paint. No doubt other and more specialised tools will appear for the Amiga which will perform particular tasks better than a general "paint" program, no matter how good. As a creative tool, however, or for general design work at a fairly low level, it is difficult to imagine anything appearing in the short term which could be much better.

A few points, however, should be mentioned. The first is the quality of the print-outs obtained, at least on the popular Epson FX80. Clearly it is not possible to do justice to a colour picture in black and white. Even so the Amiga device driver for the average Epson printer leaves a lot to be desired when it comes to graphics mode. Compared to the graphical output of, say, the GEM system on an IBM PC, an Amiga graphics print-out is a poor affair. If the quality of the device driver software supplied with the Amiga is not improved, Electronic Arts would do well to design their own.

The other reservation has to be over the instruction manual for the package, which is a confused and pallid affair. Deluxe Paint is easy enough to learn by experimentation but even so a clearly laid out manual would have been a help.

It is sad that having lavished so much skill on the packages they produce, many software houses refuse to recognise that manual writing is a skill on its own — and one that successful programmers or sales executives don't often possess. If Electronic Arts want to pitch programs like Deluxe Paint at a price level closer to commercial programs than to simple home software — a level that is fully justified — then buyers have the right to expect documentation up to the best commercial standards.

Finally, the number of fonts supplied with the package is a disappointment, as is the range of sizes the individual fonts are supplied in. Only seven type styles are supplied, which makes the package inferior in this respect to Macpaint. In most cases, each type style is supplied in only two sizes. No doubt some would argue that the ability to resize material on the screen makes it unnecessary to supply the text fonts in a variety of sizes. In fact increasing the size of a font is nowhere near as simple as crudely multiplying its dimensions. Simply magnifying text leads to lettering which is quite unacceptable for serious use. It is to be hoped that future editions of the program will be issued with a range of fonts which does justice to the flexibility of the program in other respects.

Deluxe Paint, despite the one or two reservations listed above, is the kind of program that most Amiga owners will lust after. I suspect that in the hands of intelligent dealers, this one package will sell more Amigas than any other. For anyone who feels the need for some creative fun or simple design work this program, for the present at least, is indispensable.

HOW IS Commodore's wonder machine the Amiga faring in the tough European market?

LAS VEGAS CES

THERE'S still no indication of the likely UK price of the Amiga, but in the States it seems that the cheaper Atari 520 ST is giving the superior machine a run for its money.

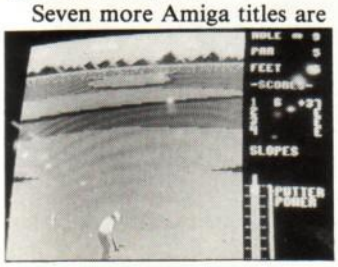
At the Las Vegas CES, Commodore made a tactical blunder by holding a press conference on the opening day, then disappearing entirely — leaving the field open for Atari.

However, despite the absence of Commodore several software companies showed products for the 64 and the Amiga. The C128 did fairly well too — with something like 120,000 sold at Christmas, it's been a reasonable success so far in the States.

Many software houses, unable to decide between Commodore and Atri, and between the old 8-bit machines and the new 16-bit, did not exhibit; notable by their absence were Infocom, Broderbund, Datasoft and Sierra. However, Sub-Logic, Access, Microprose, Activision, Electronic Arts and the UK Mastertronic and Firebird showed some significant new releases.

● **ELECTRONIC ARTS,** for some time the major US champions of the Amiga, announced that the five Amiga titles launched in December recouped all their development costs for 1986 — and that's estimated at $600,000. Titles include **Deluxe Paint,** a high-level graphic design package; **One-on-One,** a basketball simulation; **Seven Cities of Gold,** a conversion of a 64 adventure game; **Archon,** a chess-like strategy game; and **Financial Cookbook,** a home economics planner.

Seven more Amiga titles are planned for the first quarter of '86. These include **Deluxe Print,** a versatile printing tool; and **Deluxe Video,** a do-it-yourself graphic storytelling package. Three new products specifically for the Amiga are **Return to Atlantis,** a 3-D underwater adventure; **Arctic Fox,** a combat flight simulator; and **Instant Music,** which can be used to create soundtracks for Deluxe Video.



Leader Board

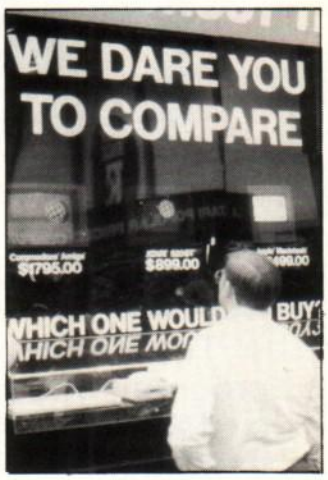
Enhanced versions of the 64 games **Skyfox** and **Adventure Construction Set** are also planned.

● **ACTIVISION** previewed **Borrowed Time,** an interactive text and graphics adventure from the creators of Mindshadow; and **Hacker** and **Mindshadow** have been converted from the 64. Conversions of **Little Computer People** and **The Music Studio** are also on the way.

Activision's UK managing director, Hugh Rees-Parnall, promises Amiga versions of **Hacker** and **Mindshadow** in the UK in early Spring.

However, it wasn't all joy unrestrained for the Amiga; Atari's notorious comparison test, showing the bouncing ball demo (for which the Amiga is famous) running on the Amiga, Atari 520 ST and Apple Mac, drew some unflattering price comparisons. What Atari didn't say is that the 520ST demo is silent, while the Amiga version is accompanied by thunderous sampled sound; and the Amiga version is produced by a simple matter of scrolling two "playfields", while the ST version takes up huge amounts of processor power.

Bing Gordon of Electronic Arts, staunchest supporters of the Amiga, commented "Atari's Jack Tramiel has shown himself to be pretty canny, while Commodore has been making a lot of mistakes recently." The failure to show the Amiga properly at CES, and the continuing scepticism of software suppliers towards the market hopes of the expensive Amiga, mean that Commodore's machine is in for a rough ride, unless licensing of the technology involved can produce a new standard operating system for the new generation of home computers.



Borrowed Time — Actitivion's Amiga adventure

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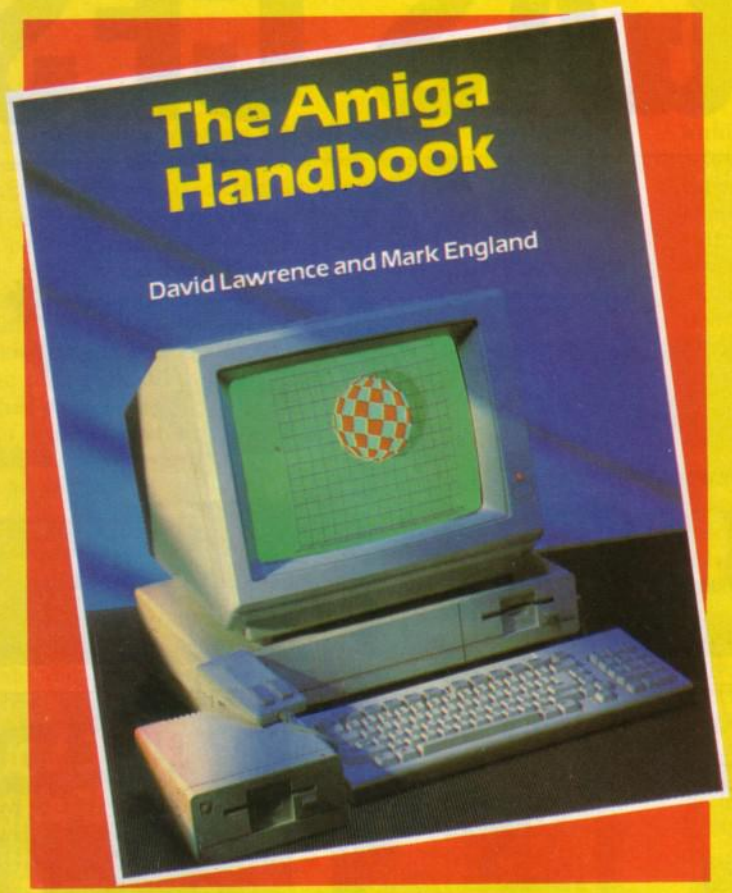

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WHICH COMPUTER?

THE AMIGA, of course! At its UK launch the new machine made a predictable impact

THE AMIGA has made a big impact at the Birmingham **Which Computer Show** — but at the Las Vegas **Consumer Elecronics Show** the reception has been more muted.

Following the conference of European software developers in December, the Amiga's UK launch at the National Exhibition Centre made it the centre of attention at the country's biggest business computer show.

Software from a wide range of developers was to show, promising a good number of titles at the release of the machine on the UK market in the Spring.

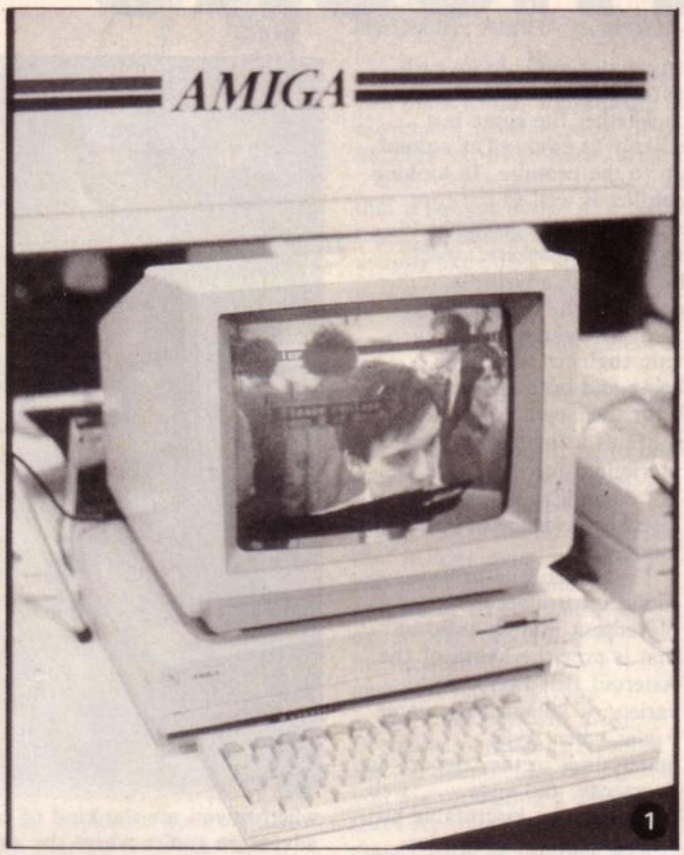
● **DIALTEXT,** from Talbot Computers, is a complete integrated communications program for the Amiga. It features simple access to databases such as Telecom Gold, Easy Link and One-to-One, autodial/logon, printing or disk save of calls, user definable mailboxes with passwords, bulletin board feature, text editing and multitasking.

● **AMIGALINK** is a local area network system which allows up to 125 "nodes" per ring. Rings on different sites can be connected via modem, and the SimpleNet software allows remote file access. The system allows computers, peripherals and terminals to be linked together in a cost-effective way, and will be available from Nine Tiles Computer Systems in April.

● **ABasicC,** MCC PASCAL and CAMBRIDGE LISP from Metacomco, designers of the Amiga DOS operating system, are the first of a series of releases from the Bristol-based 68000 specialists.

● **AMIGA FONT DESK** from Cygnet Computer Consultants is a typesetting package, featuring allowing the simple production of documents, standard forms and technically illustrated literature. It also supports the production of artwork and letterheads, and can output to laser or dot matrix printers.

The Illustrator section will take in **Graphicraft** or **DeLuxe Paint** pictures, or **Textcraft** files.



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THE AMIGA TRIBUNE

14th January 1986 15p

MACKRAZ SAYS BOING

CYGNET ANNOUNCES LAUNCH OF THE FRONT DESK

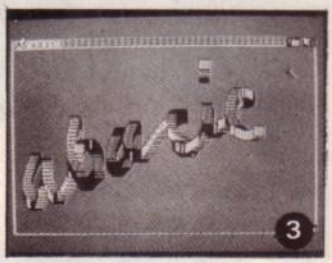
COMMODORE AMIGA KILLS THE OPPOSITION DEAD

FOR SALE

WANTED

2

Cygnet's Font Desk — some day all magazines may be made this way!



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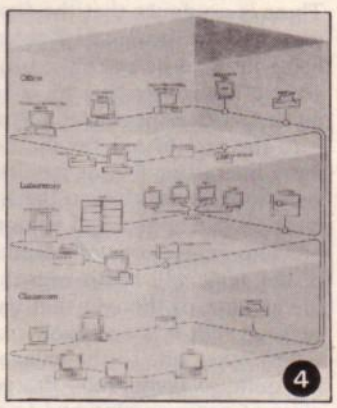

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1. Video genlock, combining a video camera signal with Amiga-generated graphics; 2. Cygnet's Font Desk; 3. Metacomco's ABasiC; 4. Nine Titles' Multilink; 5. Micronet on the Amiga

● **ACQUISITION** from Taurus is an office filing system which allows you to define how files should be indexed and cross-referenced, which employees have access to which files, whether the system is hierarchical or relational (or both), and how the screen displays are presented. Acquisition is created using the database language ACOM, which is fully accessible to the user. Total capacity is 100Mb of files.

BRATACCAS

THE PROBLEM with reviewing any major game in its early days is that two potentially very different things may have to be said about it. The first concerns whether the game is a good idea and one that people are likely to enjoy. The second is whether the early versions live up to the promise. In looking at **Brataccas** from Psygnosis this conflict is well to the fore.

First, is Brataccas a good game? The answer surely has to be yes, with good scores for originality, authenticity, variety, humour and even tension — not bad for one adventure.

The theme of the game is the search for the evidence that will save the reputation and the life of a scientist called Kyne. Kyne's problem is that he is a genetic engineer who has discovered how to create a super-being and both government and the underworld want his work for their own nefarious ends. Kyne is destined to spend his life as a fugitive, branded a criminal for crimes he did not commit, unless he can discover evidence of his innocence.

The evidence is to be found on Brataccas, a played-out mining asteroid that is now the haunt of the Asteroid Belt Police and a variety of villains. The game begins when Kyne materialises in the teleport on Brataccas, and ends.....well I'd love to be inscrutable but I haven't the faintest idea how it ends.

Brataccas, as the illustrations show, is far from being a text based adventure. Everything, including the cast of around sixty different characters, is represented in the form of an animated cartoon in which the player controls Kyne. The extensive list of actions and interactions with other characters is controlled by means of the mouse or keyboard.

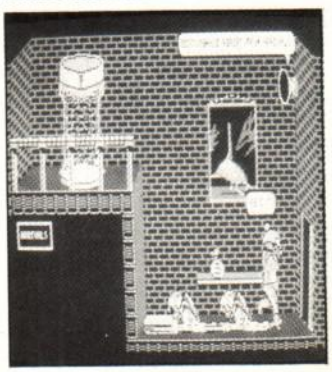
The other characters in the adventure consist of a troupe of straight laced police under the orders of the crippled Commander Stopp, the robot droids who guard the official areas of the asteroid, the barmen, the bureaucrats, the assassin Lash, the evil Kol Worpt and a variety of stooges — to name but a few.

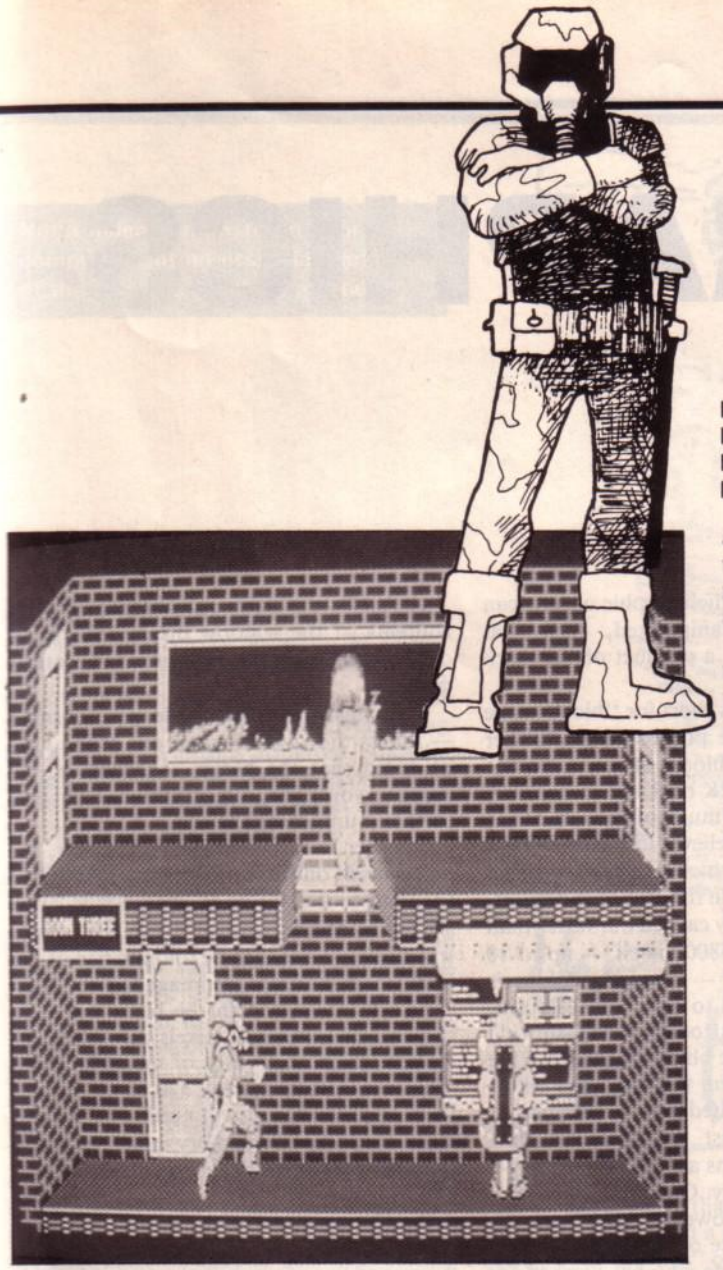
Whether Brataccas is the style of game that you will enjoy depends, I think, on

whether you are the kind of person who can cope with adventure games where the aim of the game is ill defined. There is no doubt that the first few sessions of playing can be extremely frustrating as Kyne makes his way from bar to bar being insulted or patronised by everyone in sight, and to no great effect except that he is eventually killed and arrives mysteriously reincarnated in the transporter room.

In the case of our family, however, the first step towards a more interesting life very quickly became apparent and we were soon in the thick o the fight (literally). It is certainly, for most people, a new and colourful experience compared to previous generations of adventures. How long the challenges of the game will last is something that only time will tell, but the amount of thought that has obviously gone into its design suggests that it is not likely to be solved quickly.

The other side of the balance that was mentioned earlier is not quite so favourable. Brataccas is a clever and complex piece of programming and to maximise the return on the





PROGRAM: BRATACCAS
PUBLISHER: PSYGNOSIS
PRICE: TBA
MACHINE: AMIGA (with minimum 512K memory)

considerable effort it must have taken, Psygnosis have written it in such a way that it can be easily adapted from one 68000 based machine to another. In practice this means that many of a machine's in-built facilities are ignored since they will not be common to others to which the game must be adapted.

All this may well be satisfactory on an Atari ST or a Macintosh but with due respect to those machines they are not in the same class with the Amiga when it comes to graphics. It is often painful to see Brataccas struggling to maintain large groups of animated objects, such as people, on the screen. Figures flicker to the front and back of a grouip as their priority changes without apparent logic. When objects move they do so in crude steps which have obviously been found necessary to keep the game running at a reasonable speed.

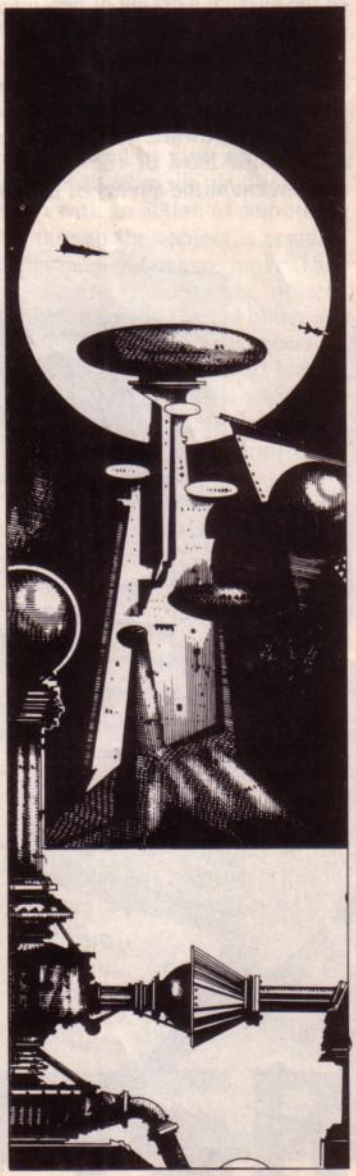
Quite simply, Brataccas makes inadquate use of the Amiga's built in graphics facilities. The Amiga itself has the capability to manage both sprites and "blitter objects" quickly and smoothly under simple direction from a program. Anyone who has seen even the simplest animation examples on the Amiga will realize that the animation on Brataccas simply doesn't come up to scratch. The game needs to be stripped down and properly designed for the Amiga — a hastily translated ST version simply won't do.

Apart from that general point, there are a number of minor annoyances with the version of Brattaccas that I played. Not least among these was the fact that it crashed several times over a period of days, leaving a half-drawn room on the screen. More annoying were the times when speech bubbles vital to making a decision about the game were displayed slightly off the screen so that the text could not be read.

Some attention also needs to be paid to the way in which the game is controlled by means of a mouse. If you watch the average user with a mouse you will quickly see that there are two parts to any movement. First of all there is a quick, gross movement covering most of the distance and then a slight adjustment, often backwards to the precise position desired.

This works perfectly for most applications, which require that a pointer arrive at a certain position. Brataccas, however, treats slight movements of he mouse as commands to perform actions like "pick up", "draw sword" and so on. The result is that any slight backlash can be interpreted as an instruction. If you run out of space on the desk and need to reposition the mouse, any slight movement as you pick it up can be taken as an instruction.

These 'phantom instructions" area at least irritating and sometimes can cost the player dearly. The solution for games like Brataccas might be to de-sensitize the mouse so that a movement, say, of at least two inches is needed to register a command. Until that is done many players will never get beyond the annoyance of the game apparently responding to instructions they are not aware of having given.



The final criticism of the Brataccas package is reserved for the documentation. If you are producing a game for three separate machines it makes sense to produce an overall instruction booklet. It doesn't make sense to weave the detailed instructions for running the game on the three machines so closely together that it is almost impossible to distinguish which instructions apply to which machine. With the best will in the world, instructions which tell the user to Kickstart the Amiga (power it up with the special boot disk) and then ensure that the power is off need to be revised

The overall conclusion on Brataccas must be that it is good, but that it still needs some work. Undoubtedly it is a good game with a lot of depth, style and challenge that will make it a favourite for more than just a few hours of play. At the same time, Psygnosis need to ensure that irritating faults and limitations don't stand in the way of that fact being appreciated.

FAST GRAPHICS

IN OUR overview of the Amiga we looked at the main features of the Amiga's hardware and noted that while they gave a guide to what makes the machine tick, the only way to really understand it was to look in detail at the individual functions that they performed. Nowehere is that more true than in the case of the "blitter", the strange sounding device that forms part of the AGNUS chip described earlier.

Hardware

Those who tends to avoid the technicalities of the internal working of new micros should try not to turn off their minds at this point because what follows is not too technical and, to put it bluntly, you cannot really understand the Amiga withough thinking about its hardware. If the first impression that people have of the Amiga is one of amazement at the quality of its graphics and the sheer speed at which graphic objects can be moved and manipulated, then that amazement is really a product of the work of the blitter.

The name blitter is short for "block image transferrer" and the purpose of the blitter is simply to transfer blocks of data from one place in the first 512K of RAM to another. Once again, as with much of the rest of the hardware, this task relieves the 68000 of time consuming chores which would slow down the system but also, in the case of the blitter, the process is actually carried out faster than it would be by the 68000 itself — up to 10 times faster in fact — since the blitter is specifically designed to carry out the task.

The act of straightforward data shifting is central to what the blitter does within the Amiga graphics system — though the blitter is not necessarily limited in its application to graphics, it will just as cheerfully shift programs around in memory if necessary. Graphics is the major area, however, and here the relevance of the blitter is clear to anyone who has worked for more than a few minutes with an Amiga.

The totally flexible display of the Amiga, with windows appearing and disappearing, shuffling behind one another, moving from one point to another on the screen, is no more nor less than a massive demand for the movement of data in memory. Every time a window is shifted from one place to another, for instance:

a) the area that it used to occupy has to be reconstituted by bringing the previous contents back from a "memory buffer" in which they have been saved.

b) the data from the area which is about to be covered by the window has to be copied from the display memory into a buffer.

c) finally the data which represents the contents of the window display has to be copied into the display memory at the correct point.

These tasks, though simple, are not small — unless they were carried out at the kind of speed that the blitter can achieve, the Amiga would be almost impossible and certainly unpleasant to use.

In order to carry out such a transfer, the blitter needs only to be told where in memory the data to be shifted is, where it is being shifted to and how much there is to copy. In addition it needs to be told the size of the lines which make up the image it is copying.

For instance it might be being asked to copy a small image 32 pixels across and 20 pixels high from an area of memory which represents a total display 320 pixels across. In order to do this it will need to be able to move to the byte in memory representing the beginning of the rectangle holding the image, pick up the two 16-bit words of data that defin 32 pixels and move them, then skip through the memory to the data representing the second line of pixels in the rectangle. This operation it would perform twenty times and in doing so copy the spcified image, without touching anything around.

Pixels

Simply moving data is not the limit of the abilities of the blitter, useful though it may be. One of the problems of writing data into a display arises if the image to be placed on the screen is not rectangular, or where the images to be placed on the screen need to be drawn from separate sources. In fact that blitter can cope unaided with a wide variety of situations like this because the AGNUS chip provides it with 4 dedicated direct memory access channels.

Three of these channels the blitter uses to call up data simultaneously from up to three different sources, while the fourth channel is employed to send the resulting output to the destination in memory. In calling up information from more than one source, the blitter is equipped to carry out a variety of what are known as "logical operation" such as AND, OR, INVERT, EXCLUSIVE OR, which allows pixels from one source to take priority over others, to be manipulated, to be combined with others and so on.

One frequent use of these abilities is to overcome the fact that the blitter can only move rectangles directly — this raises a

Not a hideous monster in your computer, but an essential part of the Amiga's graphics abilities . . .

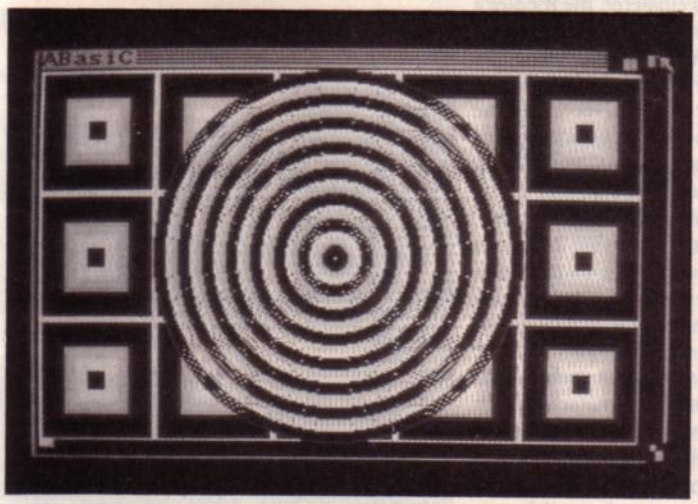
The Blitter

problem if, for instance, a multi-coloured circular pattern is to be placed on the screen. What has to be moved is actually a rectangle containing the circle and unwanted parts of the rectangle may obliterate something important and is already displayed. Since the circle is multi-coloured, there is no possibility of telling the blitter only to transfer the pixels that are not "background' color.

Patterns

In such cases the ability to combine different sources can be used to make the blitter pick up say, a black copy of the circular pattern from one source. The circular pattern itself is then taken from memory as the second source. Finally the two are combined with the existing screen display (the third source) so that any pixels which fall within the shape defined by the black "mask" are overwritten and any which fall outside the shape defined by the mask are left unchanged. The result is then sent out along the fourth DMA channel and the circular pattern appears on the screen without the least disturbance to anything around it.

So fast is the blitter at carrying out complex tasks involving placing an image over a background that it can be used to move objects around a display in much the same way as "sprites" on something like the Commodore 64 — independent small images which are not part of the main display and so can be moved rapidly around. In doing this it is aided by another important feature, its ability to move data a certain number of bits to the left or the right before it places them into the display.



Without this, the smallest movement that could be made of an object would be one complete 16-bit word, the smallest unit with which the Amiga normally deals. With the ability to shift data left or right an object can be made to move pixel by pixel as if it were completely detached from the playfield over which it moves with an action as smooth as a full sprite, though the sobject is acutally part of the playfield and cannot move from playfield to playfield. Sprite-like objects whose movement is handled by the blitter are referred to as "bobs" and there is specialist software in the operating system to handle them and to provide them with a variety of sprite-like characteristics such as transparency, collision detection, priority on the screen and so forth.

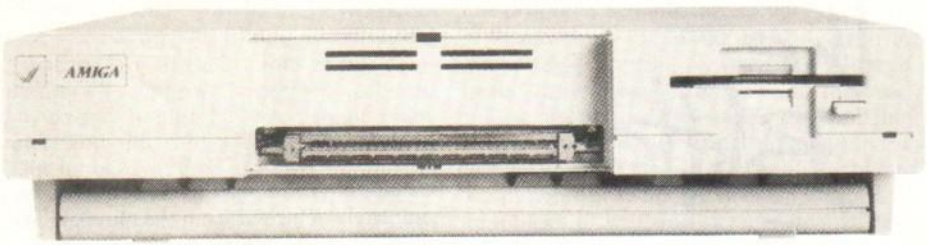
Finally, apart from its role in shifting memory the blitter is also used for two more specialised graphics roles, area filling and line drawing. Filling an area with a color or pattern is a logical extension of its abilities to work with the outline of an object and to fill an area of memory with something.

Line drawing is also provided for in a variety of different modes, solid, textured, inverse video and so on, which is why the Amiga can achieve such speed at the constructions of line drawn items, even to the extent of providing smooth animation of several changing line-drawn shapes on the screen — something not seen before in a micro in anywhere near the Amiga's price range.

BY THE BLITTER

THE SYSTEM

EVERY working computer, no matter how humble, is a complex machine made up of an extraordinary variety of components. What makes a **good** computer, however, is not complexity but the quality of the components and the effectiveness of the design that ties those components together. On both these counts the Amiga family represents a major step forward in personal computers, offering a level of power and performance simply not seen before in a personal computer. In this article we intend to cast a quick eye over the major features of the Amiga that justify such seemingly extravagant claims.



The power of the Amiga rests mainly on a collection of four chips never before seen in combination — three of them never before seen at all — the Motorola MC68000 central processor unit, the AGNUS address generator, the DENISE (or DAPHNE) display encoder chip and the PAULA (or PORTIA) ports, audio and UART chip. Based around this central core is 256K of memory used by the system to store the operating system of the Amiga — the form of the memory involved may be specially protected random access memory loaded from disk when the machine is first powered up, or read-only memory chips with the operating system built in, according to the version of the AMIGA. Outside of this the standard Amiga comes equipped with 256K of random access memory available to the user, with the option to expand up to 512K by the simple addition of a cartridge of extra memory, or up to 8 megabytes (8,388,608 bytes) on a special external memory board. This is, of course, far from the end of the story. The full Amiga system is crammed with hi-tech components and capable of expansion in a wide variety of ways, according to need.

68000 CPU

A full description of the Amiga, such as you will find in our book, involves going beyond the individual components to their parts and to the ways in which they work together, since very seldom is any function the sole responsibility of a single chip within the system. Nevertheless, a great deal can be learned about the machine simply by using the four major chips as a guide.

Though much of the work carried out by a CPU on lesser machines is borne by the rest of the hardware on the Amiga, the 68000 is still the heart of the Amiga system, as it is of a great many of the latest generation of sophisticated personal computers. The CPU is the most flexible of the Amiga's hardware in use, accepting a massive range of instructions compared to earlier generation, and its task is to co-ordinate the works of everything else in the system and to carry out by itself a wide range of functions of which other aspects of the system are not capable.

Memory

Around the 68000 is clustered the memory of the machine, consisting of a collection of "dynamic RAM" chips which must be refreshed roughly every 2 thousandths of a second if they are not to lose all record of the data they contain. The basic Amiga comes equipped, as mentioned above, with 256K bytes of memory devoted to the storage of the operating system of the machine and another 256K available to the user. Another 256K can be added in the form of a slot-in cartridge which can be inserted into a port behind the front panel of the machine. The arbitrary limit of 512K this imposes is nothing to do with the abilities of the 68000 CPU, but rather with the three other specialist chips, which are designed to deal only with memory addresses falling in the first 512K. The 68000 itself is quite capable of dealing with in excess of 16 million bytes of memory and provision is made to use this power by means of an expansion port on the side of the Amiga which, among other functions, allows the system to be made up to a full 8 megabytes.

AGNUS, which stands for the "Address Generator Chip", is in many ways the key to the speed of the Amiga in operation. In this single chip are contained three crucial

functions:

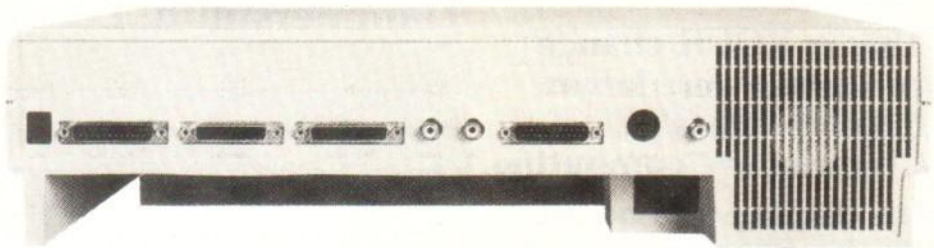
a) The controls for the "direct memory access" channels, which allow several different parts of the system to access the memory, without having to ask the CPU to both obtain the data from a specified location and/or place it into a specifield location. The Amiga has an astonishing 25 direct memory access channels devoted to functions like audio, graphics, disk drives and so on, and every one of those channels is directly responsible for relieving the CPU of a task that takes up much of its time in lesser systems.

b) The "Copper" co-processor, which allows material to be placed on the screen of the Amiga in a manner which is exactly synchronised with the 50/60 per second passages across the screen of the beam of electrons which creates the display. The Copper is an extremely fast device which not only improves the quality of the Amiga's display but once again relieves the CPU of the need to wait for the corrrect time to place an item on the screen.

The blitter

c) The "blitter" — short for "block image transferrer" is a device mainly used for the manipulation of areas of display memory which need to be moved, though it can be and is applied to other purposes within the first 512K of memory which require that blocks of memory be moved around. The point of data from place to place in memory is capable of tying up the CPU for relatively long periods, so that once again the AGNUS chip provides a facility which frees the 68000 for other, more important work that only it can carry out and secondly, within its relatively limited sphere of operations, the blitter is around 10 times as fast as the 68000 itself.

DENISE is the display encoder chip, and its basic task is to create the display on the screen of the monitor or television attached to the Amiga. The data on which the Amiga display is based is stored in a complex format which makes it easier to generate and manipulate the wide variety of colours which the system allows. DENISE makes it possible for this complex data to be sent straight out of memory, without having to be heavily processed, and then to be rapidly transformed into a format suitable for the screen — thus again relieving the CPU of a major task which is otherwise constantly going on. The addition to this overall task, DENISE also handles the job of mixing in the images of any sprites, small graphics objects which are capable of being moved around the display rapidly, indepently of anything else. Finally, as if these tasks were not enough, DENISE also carries most of the responsibility for monitoring the mouse port, through which information is received from the mouse device.



The final major custom chip amongst the Amiga's hardware is PAULA, the ports, audio and UART chip. The majority of the chip is devoted to the complex task of handling the Amiga's four separate sound channels, with some help from the AGNUS chip, which places 4 direct memory access channels at the disposal of the audio system. In addition to this, PAULA handles the communication of the system with the disk drives and with the serial port at the rear of the machine.

Faster and better

These then are the major components of the Amiga — in terms of function, if not of size. None of them can be really described as major steps forward in technology. What is special about them is that in the Amiga, for the first time among the new generation of graphics-based personal computers, someone has taken the trouble to sit down and analyse the kind of task which the graphics environment requires and the kind of burdens it places on the system. AGNUS, DENISE and PAULA, though fairly simple devices in themselves are precisely adapted to take over roles from the 68000 CPU and to perform those roles faster and better, leaving the raw power of the 68000 to be used where it is needed most — in running programs. ●

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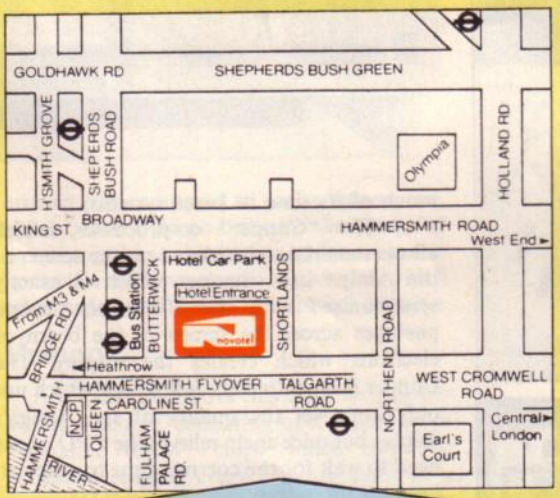

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CH 3

A perfect wish...

***Ken Mathews** dreams his way through Wishbringer, takes on Darkon and eyes The Odyssey in this month's fearless feature*

AS PROMISED, the featured adventure this month is the latest from Infocom, **Wishbringer**.

The world's premier adventure writers have spared lesser mortals with this one by making their latest piece of Interactive fiction 'Introductory' level. Of course, what's introductory to them will confound all but the most agile synapses?

The package is the now standard 'bookcase' style with the manual fixed to the cover and the disk and play aids in a saleable tray inside.

The manual, in the guise of a book from the Festeron Town Library, details the history of the Magic Dream Stone and how it can be used to gain seven wishes. There follow fifteen pages of instructions on how you can interact with the program.

Now the beauty of Infocom — the play aids. No one else has their knack of producing sophisticated material that sets the scene and gives the player such a feeling of being in the adventure. Their eye for detail and touches of humour are masterful. Wishbringer gives you a Postal Map of Festeron and vicinity, a sealed, mysterious envelope — complete with platypus stamp and you very own 'glow-in-the-dark' Magick Stone!!

Daydream

Well, Game On! and you are catapulted into a daydream — only to be shaken from your reverie, in the nick of time, by your Boss, Mr. Crisp the Postmaster who has this vysterious envelope for you to deliver...

So begins your Quest, wreathed in fog and steeped in mystery. You will walk the twilight streets of Witchville, fearful lest your next step should cast you into the path of Trolls, grues or the bizarre and fiendishly funny Boot Patrol.

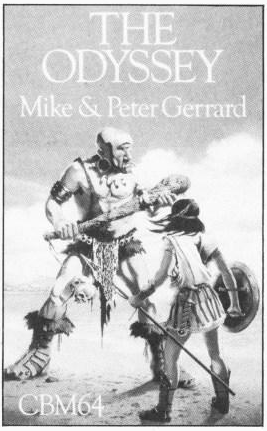
Humour runs through the game — it's surprising how a laugh at the right time gives you the urge to play a little more no matter how stuck you think you are. Old hands will appreciate a few scenes that hark back to Zork and a little white house or chuckle at the fridge in the grue's nest.

To say any more would be to give away too much for those of you already reaching into your pocket for the readies. The best doesn't come cheap though and you'll need about £35 before you too can savour this excellent game. Only Infocom could take the fantasy theme everyone's saying is past it and give it a new and sparkling lease of life.

It will be very interesting to see what Pete Austin et al will do as they move onto disk as the many revolutionary features of the Worm in Paradise make it easily the most sophisticated cassette adventure around — perhaps Infocom better watch out for lurking Levels!

After the Lord Mayor's Show... comes **Souls of Darkon** from Taskset, the Yorkshire firm who produced the two best-known (only ?) adventures for Uncle Clive's QL.

Apparently the people of the planet Megron — you know the place, just beyond



the sun of Crenal — have stirred up the ultimate evil power, Darkon with their dabbling in magic and technology. Of course, only you and your faithful droid Komputa (sic) can save the planet — blah, blah, bore, bore!

The cassette cover shows a minotaur and a minor tour of the game is all you need to put you off. It does have half screen graphics — black on green — ugh! But my main beef is the parser. The game will list its vocabulary for you — it only takes half the screen and trying to play down to its level is infuriating.

Leave this one where it belongs — on the shelf!!!

Next, from Duckworth, comes **The Odyssey**, based on Homer's epic tales of ancient Greece. The game is written by Duckworth's dynamic duo — Mike and Pete Gerrard.

A classical adventure in good old text-only style — I nearly gagged when I found the opening text to be inverse black on green! but, happily this changes as you go through the game, to reflect your background I guess.

No surprises with this game, limit descriptions and quite slow responses although the vocabulary is adequate to the tasks required of it. There is plenty of game though, with around 80K on the two cassetes.

The theme, being around 3000 years old, can hardly be called original but the Gerrards have tried hard to keep to the pic and have given an original treatement to an old theme if you like.

Overall though, nothing to write home about and not really worth buying unless you, or the kids are interested in re-living the Iliad.

Last but by no means least this month, an enchanting little tale from Ireland's first ladies of Adventure — The Belles of St. Bride's, entitled **The Snow Queen**.

Yep, you've guessed it — based on the Fairy Tale of the same name. Miss Scarlett (not played by Vivien Leigh) tells me that you'll need to read the story to understand the game and a facsimile of it will be contained with the adventure.

No orc-slaying, troll-bashing, mindless mayhem in this game, although 'Fairy Tales' are full of it (they weren't called the Brothers Grimm for nothing). Indeed, Gerda, the heroine of this tale, is so nice it's sickening sometimes — she won't do anything until things are 'just so'.

Nevertheless the game is fast, stylish and original — it's quite good fun trying to think like a goodie all the time.

Ring cycle

The version I'm playing is just a preview but by the time you read this the final version should be out — the only adventure with the Mary Whitehouse seal of approval ???

How the time flies. Ready for your delight next month I've got **Masquerade** from US Gold, **Coma** from a new company called Kalisti and perhaps a look at the Commodore version of **Lord of the Rings**. Oh Yes! Nearly forgot, **Mickey Mouse's Space Adventure** — are they trying to tell me something ?? ■

C128 pictures

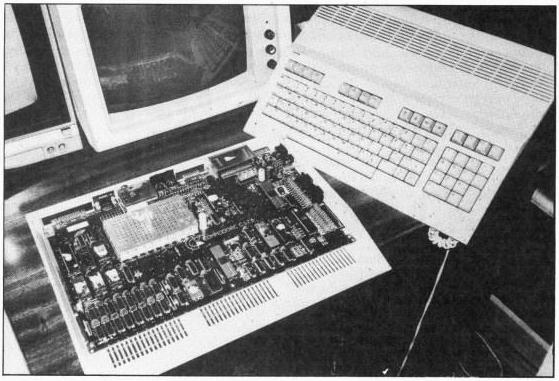
In the second of our three articles on C128 Basic, ***Tony Harrison-Smith*** *looks at the graphics commands and includes some useful listings*

In last month's issue I looked at the new commands for making the entering and debugging of programs easier on the C128. This month I will be investigating the commands for making the use of graphics easier. The Commodore 64 was well-known for having good sound and graphic capabilities, but it was notoriously hard to get the full use out of them. The C128 has new commands added which allow the use of its full capabilities without having to resort to endless use of Peeks and Pokes.

Hi-res

Overall twelve hi-res graphics commands and functions have been added to the C128 to aid the drawing onto a high resolution screen. Most of the following commands would have needed a large machine code routine to run effectively on the C64.

The first, and obviously the most important, command is the one which selects the type of graphic screen to be used. This command is **graphic**. There are six different types of graphic screens available from text to bit mapped graphics. The bit mapped graphic screens can be standard or multi-coloured and can also be selected with a split screen option. The split screen option is very powerful, allowing the programmer to select the line where the graphics end and the text begins on the screen. The final option with the graphic command is to clear the screen whenever the command is called. It should be noted that if any of the bit-mapped screens are used, 9K of basic programming memory is reserved for the screen. As there is 54k of memory for basic programs, this is not really a problem.



To clear a screen without having to recall the graphic command use the command **scnclr**. This will clear only the graphic screen specified after the scnclr command. This command is very useful when using text and graphic screens within a program when you do not want the screen cleared every time you select a new screen type.

The standard definition of the C128 bit-mapped screen is 319x199 pixels but the multi-colour screen only has a definition of 159x199 pixels. To overcome any difficulties in using both screens in the same program, or even converting programs from another machine with a different definition, the command **scale** is used. This command allows the theoretical definition of the C128 graphic screen to be changed. What happens is that when a draw box, etc command is used, the C128 will work out the relative position on its theoretical screen and then scale the coordinates to fit on its actual screen. This might sound complicated, so let me give an example. You scaled the theoretical screen to 5000x4000 to copy another machine's definition. To position the cursor in the centre of this machine's screen you would designate the coordinates 2500, 2000. The C128 will now work out the relative position of those coordinates and then position its own cursor to the centre of

ROTATING BOXES

```
20 COLOR 0,6: REM SET BACKGROUND GREEN
30 COLOR 1,2: REM SET FOREGROUND WHITE
40 GRAPHIC 1,1: REM SET AND CLEAR BIT MAPPED SCREEN.
50 CHAR ,10,1,"PROGRAM 1- ROTATING BOXES"
60 FOR I=1 TO 180STEP 30
70 BOX ,25,25,50,50,I,0 : REM DRAW BOX AT ANGLE I
80 NEXT I
90 COLOR 1,8: REM SET FOREGROUND YELLOW
100 FOR I=1 TO 90STEP 10
110 BOX 1,75,50,125,100,I,0 : REM DRAW BOX AT ANGLE I
120 NEXT I
130 COLOR 1,1: REM SET FOREGROUND BLACK
140 FOR I=1 TO 180STEP 10
150 BOX ,200,75,250,175,I,0 : REM DRAW BOX AT ANGLE I
160 NEXT I
170 SLEEP 5 : REM WAIT 5 SECONDS
180 GRAPHIC 0 : REM BACK TO TEXT MODE
```

the screen automatically. As can be seen from the previous example the scale command allows for much easier conversion of graphic layouts from other sources.

As with most computers there is a **draw** command. This allows a line to be drawn from one point to another. The additioinal feature of the C128 version is that you can select any one of 4 colour sources. The colours can be taken from the background, foreground or multi-colour 2 + 3. All the drawing commands included in the C128 have this colour facility. With draw, there is no need to limit the command to start and finish coordinates, several points can be included so that a one line command can draw a complicated shape. This allows the drawing of shapes to the screen without an excessive amount of program code.

To aid the drawing of lines on the screen, the command **width** allows either single or double width lines to be used.

Boxes

To draw a box or rectangle on the screen use the command **box**. In its simplest form, you specify the top left and bottom right corners of the box and it is drawn on the screen. The box command will also allow you to specify its colour source, the angle of the box and whether it should be painted with the original colour specified. Program 1 shows some examples of rotating boxes that give an interesting pattern.

For any geometrical shapes the **circle** command is used. This may sound a bit odd but the circle command has nine Parameters which can be set to change its shape. The parameters are; colour, X & Y position of its centre, X & Y radii, starting and finishing arc angles, rotation angle and increment between segments of arc. If a segment of 45 degrees is specified the circle command will draw an octagon. Program 2 shows some example of the shapes that can be formed by this command.

The **paint** command allows an area which is bordered by a fully closed shape to be fitted with a colour from a specified source. An additional feature is the option to paint up to the first boundary it finds or the first boundary of the same colour as the 'paint'. This is useful if you are using multi-colour graphics and you do not want to paint over adjacent areas.

To display text on a graphics screen use the command **char**. This will display text in the position specified on either a graphic or text screen. The ability to work on both types of screen allows the programmer to display a message on any screen using only one sub-routine. For example a 'Please wait...' message.

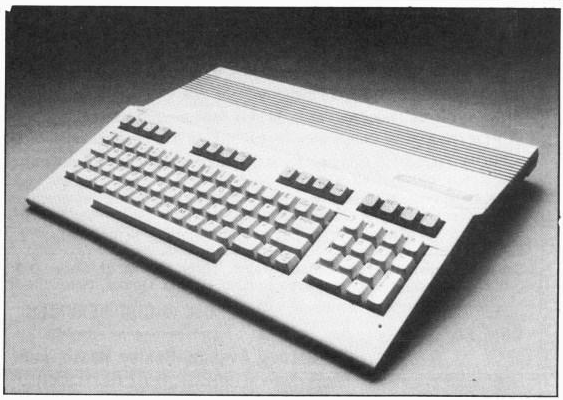
If you wish to position the pixel cursor on a graphic screen ready for a next operation, use the command **locate**. This command will not actually display anything on the screen, it just sets X & Y positions.

The last two items are functions included to report back the current state of affairs. **Rdot<>** will report the current position of the pixel cursor or the colour of the pixel as required. The function **rgr<>** returns the current graphic mode in use at the time.

Next month we'll look at sprites and sound. ■

CIRCLE COMMAND

```
20 COLOR 0,12: REM SET BACKGROUND GRAY
30 COLOR 1,2:REM SET FORGROUND WHITE
40 GRAPHIC 1,1: REM SET AND CLEAR
   BIT MAPPED SCREEN
50 CHAR ,10,0,"CIRCLE COMMAND"
60 REM --------------------CIRCLE
70 CIRCLE 1,25,30,18
80 CHAR ,1,7,"CIRCLE"
90 REM --------------------ELLIPSE
100 COLOR 1,8: REM FORGROUND=YELLOW
110 CIRCLE 1,100,30,30,18
120 CHAR ,9,7,"ELLIPSE"
130 REM ------------------ARC
140 COLOR 1,14: REM FORGROUND=GREEN
150 CIRCLE 1,175,30,18,,270,70
160 CHAR ,20,7,"ARC"
170 REM -------------------ROTATED
180 COLOR 1,11: REM FORGROUND=LT RED
190 CIRCLE 1,250,30,30,18,,,30
200 REM -----------------POLYGONS
210 CHAR ,30,7,"ROTATED"
220 COLOR 1,2 : REM FORGROUND=WHITE
230 DRAW ,0,90 TO 319,90 : REM BORDER
240 CHAR , 1,12,"POLYGONS USING
    DIFFERENT SEGMENT ANGLES"
250 REM -----------------OCTAGON
260 CIRCLE 1,50,150,30,,,,,45
270 CHAR ,3,24,"OCTAGON"
280 REM -----------------TRIANGLE
290 COLOR 1,14: REM FORGROUND=GREEN
300 CIRCLE 1,150,150,30,,,,,120
310 CHAR ,15,24,"TRIANGLE"
320 REM -----------------DIAMOND
330 COLOR 1,8: REM FORGROUND=YELLOW
340 CIRCLE 1,270,150,30,,,,,90
350 CHAR ,30,24,"DIAMOND"
360 SLEEP 5: REM WAIT 5 SECONDS
370 GRAPHIC 0: REM TEST SCREEN
```



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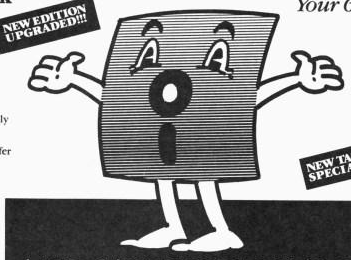

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Speed of lightning

The latest programming extension package, Laser Basic, comes under the examination of ***Tony Kendle****, who develops some dangerous ideas . . .*

OASIS Software, proud owners of many prestigious awards for their **White Lightning** games writing utilities, have produced nothing new for nearly a year. Anyone who is aware of the effort and care that went into Lightning will not be surprised to hear that they have been far from idle in that time and now look set to carry off fistfuls of new trophies as the results come to light.

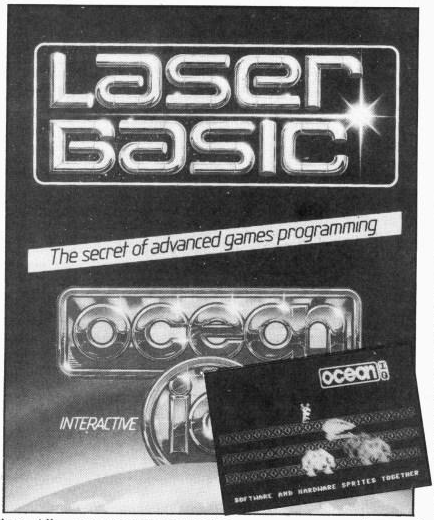
A liaison with the giant games company **Ocean** has spawned the Ocean IQ label. Together they promise to release a range of top quality utilities including an 'intelligent' assembler/monitor, which they say will be spectacular, and a word processor. There will also be music and graphics design package which will be data compatible with the games utilities so that the output can be shared between them. Many months off yet will be a package that is designed for writing 3D vector graphics rather than sprite games.

The flagship of the new range is **Laser Basic**, for the Spectrum, Amstrad and Commodore machines. This new release is the pinnacle of the Oasis utilities to date, extremely powerful and easy to use. Whilst the versions obviously differ to reflect the hardware of each machine there are many similarities between them. Not only are you provided with extensive routines for controlling sound and screen output, but there are also many laudable structured programming additions. All three versions are excellent but Commodore owners have possibly got the best deal, partly because the hardware is the strongest for games writing but also, it must be said, because the original Basic is so badly in need of improvement.

The tape or disc comes with 3 predefined sets of sprites, a sprite designer, a very impressive demo program and the Laser basic interpreter itself. There are in fact four separate types of commands available, graphics, sound, toolkit and structured programming. You are also given a 'turbo tape facility' for quick saving and loading of the resulting program.

Toolkit commands consist of **DIR** for a disc directory, **OLD** to recover a **NEW'd** program, **AUTO** line numbering and **RENUM** which also renumbers **GOTOs** and **GOSUBs**. Structured programming options include multiple line functions and Procedures with local variables, **IF-THE-ELSE, REPEAT-UNTIL, WHILE-WEND** and **CASEOF-CASEND.**

The sound commands give total control over the SID chip ranging from simple voice, frequency, volume etc. to ambitious effects such as ring modulation. Music can be played under interrupt whilst other parts of the program are running.



The real heart of the package are the graphics routines, too many to detail here. Suffice to say you can build screens almost instantly, scroll, wrap, mirror, invert and rotate screen windows or sprites. You can control 8 hardware sprites or 255 software sprites of any dimensions, and move these around the screen with a variety of options. **XOR**ing, **OR**ing etc. The results are better than many commercial releases.

The program supports up to three multi-tasking events at any one time, graphics and sound routines run almost magically by themselves whilst the main program logic gets on with other things.

The manual is thankfully comprehensive and easy to follow with lots of explanatory diagrams. However you shouldn't underestimate the program — you are given almost total control over your computer and there are something like 256 new commands to learn. A working knowledge of Basic is essential.

Some people may recall an earlier release from Oasis for the 64, **Basic Lightning**. The Commodore was the only machine on which this first attempt at a Basic language appeared and the new Laser Basic owes much of its development to that first release. Laser Basic on the 64 has had a revision of many command names and the addition of some thirty new commands and facilities. There are also a couple of minor restrictions in the room allocated for sprites and the degree of multitasking allowed. As long as you only use features both programs have in common files are compatible with either Basic, although some command names may change when you load them in.

No copyright restrictions are placed on games produced with the utilities but the biggest drawback is of course that you need to have Laser Basic in memory before you can run your games. Oasis are working on a mini-Basic that omits the commands used for the design of sprites etc. to be used for running games, but the best news is that the next release on the IQ label, out by the time you read this, will be compilers for each of the versions of the Basic. Because the Laser Basic routines are themselves semi-compiled and extremely fast there may actually be little increase in speed of the graphics, although your game's logic will be enormously improved, but you will also finish up with machine code games that run completely independently of the utilities.

Laser Basic is facinating to use, and within a relatively short while I was having dangerous illusions of programming competence with sprites rolling and jumping all over the screen. This package is a thousand games in one, tremendous value for money, and highly recommended. ■

Program: Laser Basic
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Looking after the pennies with Multisoft

The Multisoft disks contain programs for the C128, C64 and Plus/4 in a single package. ***Tony Harrison-Smith*** *looks at a home finance program*

THE PERSONAL Money Management package (PMM) is the first release from Commodore on their Multi-soft label. The idea of Multi-soft is that several machines can access the programs on the one disk. This has the advantage that when upgrading your computer, you do not need to buy another version of the program.

The PMM program has been written to help find the most efficient way of managing money in a current and deposit account. The idea is to leave all the spare money in the deposit account to earn interest and have just enough in the current account to pay the bills.

During the review of this package I used it in C128 native mode and also in C64 mode to see the difference.

PMM has many facilities built in to make the task of running your accounts as easy as possible. The PMM can be divided into three main areas: storing budgets, standing orders and expenses; reporting the state of the finances; and saving the current data to disk.

PMM allows ten 'budgets' to be set. These are amounts that will be put away each month for a set bill, i.e. electricity. The eleventh budget is set aside standing orders. These budgets are used each month to calculate how much money must be left in the current account to pay the bills, so do not try to fiddle the amounts to make your account look good!

During the month the current expenses can be entered into the computer. The amounts, date and any comments are stored and the current expenditure is displayed. At the end of the month the current month expenses can be calculated. After the calculation has been done the computer will advise how much can be put into the deposit account as 'spare' cash.

At any time PMM can give reports about the state of your finances. The reports generated are:

- Current balances
- Budget vs Actual expenditure
- Expenses over the last twelve months
- Past transactions on all budgets
- Past transactions by month

For all the reports, if a Commodore printer is connected, the option to print out the report is given.

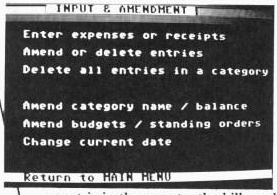
Once you have been running PMM for a year, or you have entered last year's outgoings, when you ask for the current balance report, it also will show you next month's expenditures. These figures are actually what you paid out that month last year. The Budget vs actual report will show the current saving, annual budgets and the expenditure over the last 12 months.

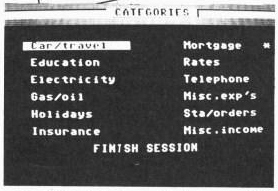
A list of all the last twelve months' expenses can be shown. The report shows the monthly expenses in three month batches. The past transactions report by category, shows the last 14 transactions for any category, shows the last 14 transactions for any category selected. The Misc Income category shows what has been happening with the deposit account.

The past transactions by month report, will show all the payments made to and from the account for the month in question. The report is in three parts, the bills and standing orders paid, the current account credits and finally the deposit account credits and debits. The last and obviously one of the most important, is the facility to save and reload data to disk. It should be noted that tape is not supported.

If PMM is used on the C128 in native mode or on the Plus/4 then an additional facility is supplied. A calculator with 9 memories, a % function and the normal arithmetic functions (+/−*). The calculator is accessed by pressing the ESC key.

Generally I liked the package a lot, for £14.99 it gives a cheap introduction to finance control. The main plus point for the package, is that it always gives plenty of warnings if you are about to destroy any old data. The main dislike about the package is that when using C128 mode, I wish they could have used the extra memory to increase the category items stored to more than 14. With a heavily used item, such as running an old car, the 14 item limit does not show the years cost of running a car (or two). ■


INPUT & AMENDMENT
Enter expenses or receipts
Amend or delete entries
Delete all entries in a category
Amend category name / balance
Amend budgets / standing orders
Change current date
Return to MAIN MENU



Product: Personal Money Management disk
Supplier: Commodore UK, 1 Hunters Road, Weldon North Industrial Estate, Corby, Northants. 0536-205555
Micro: Plus/4, C64, C128
Price: £14.99

Space Snakes return

*The second part of **Chris Woods'** high-speed machine-code 64 game*

THIS IS the second part of **Space Snakes** for the 64. Load up last month's listing and carry on typing in this month's until the program is complete. Then save and RUN the program. The program will read each line into memory, check it, and stop if there is a checksum error. When you have corrected all your errors you can resave, run, and play by typing SYS 16384. ■

```
1160 DATA A7,60,AD,0E,DC,29,FE,8D,0E,DC,A5,01,29,FB,85,01,A9,D8,8D,F0, 2698
1170 DATA 47,A9,38,8D,F3,47,A0,08,A2,00,BD,00,D8,9D,00,38,CA,D0,F7,EE, 2594
1180 DATA F0,47,EE,F3,47,88,D0,EC,A5,01,09,04,85,01,AD,0E,DC,09,01,8D, 2314
1190 DATA 0E,DC,AD,18,D0,09,0E,8D,18,D0,A2,40,BD,21,42,9D,27,39,CA,D0, 2218
1200 DATA F7,60,3C,6A,D5,AB,D5,AB,56,3C,3C,7E,FF,FF,FF,FF,7E,50,18,3C, 2919
1210 DATA 3C,3C,3C,3C,3C,24,24,3C,3C,3C,3C,3C,3C,18,00,00,7F,FE,FE,7F, 1518
1220 DATA 00,00,00,00,FE,7F,7F,FE,00,00,4C,FE,FF,7F,7E,FC,7C,38,66,42, 2200
1230 DATA 42,7E,7E,42,42,66,A9,01,A2,05,A0,00,20,B6,40,A2,06,20,91,48, 1745
1240 DATA A0,46,20,46,42,CA,D0,F5,A9,00,A2,06,A0,00,20,B6,40,A2,0B,20, 2033
1250 DATA 91,48,A0,46,20,46,42,CA,E0,06,D0,F3,60,86,FB,8A,0A,0A,0A,AA, 2317
1260 DATA A0,08,BD,A6,42,99,FF,38,CA,88,D0,F6,A6,FB,60,00,00,00,00,00, 2364
1270 DATA 00,00,00,00,00,00,30,30,00,00,00,00,3C,24,24,3C,00,00,00,00, 288
1280 DATA 7E,42,42,42,42,7E,00,FF,81,81,81,81,81,81,FF,FF,FF,FF,FF,FF, 3075
1290 DATA FF,FF,FF,00,00,00,00,00,00,00,FF,FF,FF,FF,FF,FF,FF,FF,00, 2805
1300 DATA 7E,7E,7E,7E,7E,7E,00,00,00,00,3C,3C,3C,3C,00,00,00,00,00,30,30, 1032
1310 DATA 00,00,00,AD,80,49,49,FF,8D,80,49,30,01,60,A2,0A,86,FB,BD,05, 1940
1320 DATA 4F,F0,3F,BD,07,4D,EC,06,4E,AA,A9,00,85,AA,A9,20,20,E5,40,8A, 2233
1330 DATA A6,FB,18,7D,05,4F,9D,07,4D,48,98,18,7D,04,50,9D,06,4E,A8,68, 1861
1340 DATA AA,E0,27,F0,1B,E0,00,F0,17,C0,18,F0,27,C0,00,F0,23,A9,05,85, 2456
1350 DATA AA,A9,2B,20,E5,40,A6,FB,CA,D0,B5,60,86,FD,A6,FB,BD,05,4F,49, 2961
1360 DATA FF,18,69,01,9D,05,4F,A6,FD,4C,41,49,86,FD,A6,FB,BD,04,50,49, 2409
1370 DATA FF,18,69,01,9D,04,50,A6,FD,4C,49,49,00,A9,01,8D,0C,D4,A9,8A, 2109
1380 DATA 8D,0D,D4,A9,0F,8D,18,D4,A9,32,8D,08,D4,8D,AB,49,A9,0A,8D,0A, 2222
1390 DATA D4,A9,41,8D,0B,D4,8D,52,46,A9,0F,8D,FB,43,60,00,AC,D1,49,A5, 2461
1400 DATA CB,C9,05,D0,0A,88,C0,00,D0,10,A0,01,4C,CA,49,C9,06,D0,07,C8, 2313
1410 DATA C0,00,D0,02,A0,FF,8C,D1,49,20,46,42,60,0F,AD,1E,D0,29,05,C9, 2176
1420 DATA 05,F0,0B,AD,1F,D0,29,01,F0,03,20,EF,49,60,A9,00,8D,F7,43,20, 2049
1430 DATA 00,4B,60,48,8A,48,A2,39,A9,2F,CE,15,04,CD,15,04,D0,29,8E,15, 1761
1440 DATA 04,CE,14,04,CD,14,04,D0,1E,8E,14,04,CE,13,04,CD,13,04,D0,13, 1551
1450 DATA 8E,13,04,CE,12,04,CD,12,04,D0,08,8E,12,04,A9,00,8D,F7,43,68, 1728
1460 DATA AA,68,60,A2,0A,AD,50,47,DD,07,4D,D0,08,AD,51,47,DD,06,4E,F0, 2257
1470 DATA 04,CA,D0,ED,60,A9,00,9D,05,4F,60,CE,9F,4A,F0,01,60,A9,02,8D, 2341
1480 DATA 9F,4A,AD,01,D0,CD,03,D0,F0,0B,B0,06,20,A0,4A,4C,65,4A,20,AA, 2183
1490 DATA 4A,AD,10,D0,29,03,F0,12,C9,03,F0,0E,C9,01,D0,06,20,B6,4A,4C, 2011
1500 DATA 7D,4A,20,DE,4A,60,AD,00,D0,CD,02,D0,F0,0C,B0,06,20,DE,4A,4C, 2257
1510 DATA 91,4A,20,B6,4A,60,AD,01,D0,CD,03,D0,F0,01,60,20,00,4B,60,00, 1941
1520 DATA AE,03,D0,F0,04,CA,8E,03,D0,60,AE,03,D0,E0,FF,F0,04,E8,8E,03, 2765
1530 DATA D0,60,48,AD,10,D0,AE,02,D0,E8,8E,02,D0,D0,07,09,02,8D,10,D0, 2332
1540 DATA 68,60,29,02,D0,02,68,60,AD,02,D0,C9,59,90,05,A9,58,8D,02,D0, 2083
1550 DATA 68,60,48,AE,02,D0,CA,8E,02,D0,E0,FF,D0,14,AD,10,D0,29,02,D0, 2565
1560 DATA 05,A9,00,8D,02,D0,AD,10,D0,29,FD,8D,10,D0,68,60,20,2F,46,A2, 2092
1570 DATA 0A,A0,3F,20,55,42,39,3F,03,99,3F,03,20,55,42,39,7F,03,99,7F, 1408
1580 DATA 03,20,55,42,39,BF,03,99,BF,03,88,D0,E2,A0,64,20,46,42,CA,D0, 2192
1590 DATA D8,8E,F7,43,60,A2,18,A0,0C,A9,04,85,AA,BD,3D,4B,20,E5,40,CA, 2534
1600 DATA E0,0E,D0,F1,A2,05,A0,FF,20,46,42,CA,D0,F8,CE,A6,4B,30,48,AE, 2836
1610 DATA A6,4B,A9,20,9D,00,04,A9,FF,8D,F7,43,20,6D,4C,A2,BF,BD,FC,43, 2560
1620 DATA 9D,3F,03,CA,D0,F7,A9,80,8D,01,D0,8D,03,D0,A9,32,8D,00,D0,A9, 2616
1630 DATA 14,8D,02,D0,A9,02,8D,10,D0,AD,1E,D0,AD,1F,D0,A9,30,8D,13,04, 2111
1640 DATA 8D,14,04,8D,15,04,A9,31,8D,12,04,60,3C,3C,53,50,4C,41,54,21, 1349
1650 DATA 3E,3E,04,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28, 808
1660 DATA 28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28, 800
1670 DATA 28,28,28,AC,05,D0,F0,0D,EE,05,D0,EE,05,D0,EE,05,D0,EE,05,D0, 2562
1680 DATA 60,20,55,42,C9,FF,F0,F8,18,69,01,CD,06,4D,B0,F0,A9,04,8D,05, 2376
1690 DATA D0,A9,FB,2D,10,D0,85,FC,20,55,42,29,04,85,FB,05,FC,85,FC,A5, 2701
1700 DATA FB,F0,0E,20,55,42,29,3F,8D,04,D0,A5,FC,8D,10,D0,60,20,55,42, 2206
1710 DATA C9,18,90,F9,8D,04,D0,A5,FC,8D,10,D0,60,A2,FF,20,55,42,C9,00, 2650
1720 DATA F0,F9,C9,27,B0,F5,9D,07,4D,20,55,42,C9,00,F0,F9,C9,18,B0,F5, 2910
1730 DATA 9D,06,4E,20,55,42,C9,00,30,05,A9,01,4C,55,4C,A9,FF,9D,05,4F, 1750
1740 DATA 20,55,42,C9,00,30,05,A9,01,4C,66,4C,A9,FF,9D,04,50,CA,D0,BF, 2127
1750 DATA 60,A2,28,BD,FF,03,9D,A6,4B,CA,D0,F7,A2,00,A0,00,A9,01,20,B6, 2506
1760 DATA 40,A2,28,BD,A6,4B,9D,FF,03,CA,D0,F7,60,A9,01,85,AA,A2,18,A0, 2683
1770 DATA 0C,BD,D7,4C,20,E5,40,CA,E0,0E,D0,F5,A2,1E,A0,0E,BD,E7,4C,20, 2604
1780 DATA E5,40,CA,E0,08,D0,F5,A9,00,20,DD,4C,A2,0A,A0,32,20,46,42,A5, 2393
1790 DATA CB,C9,03,F0,1B,CA,D0,F2,A9,01,20,DD,4C,A2,0A,A0,32,20,46,42, 2375
1800 DATA A5,CB,C9,03,F0,06,CA,D0,F2,4C,AF,4C,60,A2,16,9D,38,DA,CA,D0, 2918
1810 DATA FA,60,47,41,4D,45,20,20,4F,56,45,52,50,52,45,53,53,20,46,37, 1562
1820 DATA 20,54,4F,20,50,4C,41,59,20,41,47,41,49,4E,00,00,A5,70,41,82, 1393
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33. Inferno
34. Ghosts
35. Submarines
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37. Planets
38. Black Hole
39. Dynamite
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Solely 64 on Micronet — Compunet competition?

Compunet's major rival, Micronet, has just launched a Commodore 64 section. ***John Minson*** *looks at what the service has to offer*

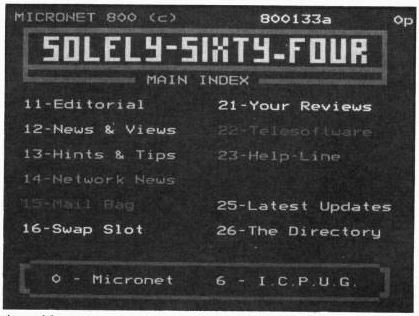
COMMUNICATIONS — wasn't that supposed to be part of the great computer revolution? Well yes, it was and....well yes, it hasn't made much impact on general computer users. Modems have a reputation as an arcane sub-section of the hobby. That was my impression too until Micronet invited me to their HQ.

First things first — what is Micronet 800? Established in 1983 it's a closed area of the Prestel system, British Telecom's network that allows business to speak unto business. Run by magazine giant, EMAP, Micronet is a venture into electronic publishing and to access it you'll need a modem to connect your Commodore to the main computer via the telephone, and of course you'll have to pay a subscription fee, of which more later.

So what does it offer? Somebody once described it as "The largest home computer club in the country," Micronet's Peter Probert tells me, and you can get most things you can get from a club (except weak coffee) without ever leaving the house. There's the Information service, with both general and micro specific news. Micronet has scored several news scoops with info on screens in a matter of hours. As a Commodore user though, you may start with the newly launched **Solely 64** section where you'll find information dedicated to CBM machines, including pretty soon an Amiga section.

There are reviews too; a useful second opinion on the criticisms you'll find here, perhaps! Educationally there are courses in Artificial Intelligence and languages, backed up with books for further reference. And no club would be complete without some trading of software (legitimately, of course!). You can download Telesoftware or indulge in multi-player games. Telesoftware includes approximately eight free programs a month, with others at about three quarters the shop price. Peter Probert was keen to praise the utilities section, where instead of having to buy a suite of short programs you can take just what you want at 50p or £1 each. Bigger games cost more but the range is wide, and if you're worried about noise on the phone lines corrupting data, don't — all programs are self checking and cancel if anything goes wrong.

The other games are run from the Micronet computers and include a Round Britain treasure hunt that costs a penny a move and offers a £100 prize every fortnight — probably the reason for its popularity! But best of all is **Starnet**, a multi-user game of space trading with room for 500 players. That Starnet was originally designed by Mike Singleton, of **Lords of Midnight** fame, should encourage you to join. Perhaps you see yourself as more of the games writer than a player — well, Micronet is always interest in buying subscribers' programs to sell over the lines.



Already we're some distance from traditional publishing, but Micronet's most innovative and exciting area has to be its communications boards. This is the true network of micro enthusiasts, the club in you home. There are seven Quick Chatlines, with each new message replacing the previous one, and a variety of topics for anybody who wants to talk, with two open lines and specialist religious, political, music, adventure and gay lines. Conversation can be fast, furious and very witty.

In the Daisy Chatlines conversation forms a daisy chain and so you can trace remarks back. Here, as well as the general areas, are machine-specific sections and the Starnet chatline. This makes the game a more vital experience with space captains planning alliances or declaring war. You can even sell that ancient Vic20 via Micronet's very own contact ads.

Finally, if this isn't enough, you can also access Prestel and shop from home or book travel tickets with your credit card, or even send telexes anywhere in the world. It's hardly surprising that Micronet currently boasts two million accesses per month and a very small loss of subscriptions.

So you're as sold on the idea as I am but the ugly question of cost raises its head. Will my phone bill stand the expense! Providing you're sensible and use the service after six and at weekends all Micronet calls are at local rate, so an hour costs only about 40p. Subscriptions? At £16.50 per quarter, it costs around 16p a day — less than a daily paper. Okay, there must be a catch. No, there isn't. Many areas are free such as the Quickchat section, and Daisy Chat costs only 2p per message while a telex to Europe costs only 50p, the USA £1! Starnet captains pay 99p to register then 25p per move, which is very reasonable. Avoid the on-peak Prestel charge of 6p per minute and you'd have to try hard to bankrupt yourself, in my opinion.

Facilities

The modem is going to be your major intitial outlay, and the **Miracle Multi Modem** offers a whole host of facilities but costs £99. However £70 will buy you a Modem 1000 plus O.E. Cartridge, and for even less there's the Compunet Modem, with as well as letting you access the other main electronic communications board can access Micronet with the addition of the Mustang Software package. The total cost is a mere £55.60.

I'm completely sold on Micronet. It's extremely friendly to use with a good Help facility if you do manage to get lost, and Andy Whaller's Solely 64 section makes it of particular interest to Commodore users. All I can do is echo that advertisement of a few years back — 'We should be talking to each other.' ■

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Software file

Flasher

This 64 utility comes from Nicholas Jones of Lytham, Lancashire.

THIS LISTING serves no real purpose, but is fun to try out! Flasher gives the effect, similar to a loading screen of a multicoloured flashing bar display.

The machine code is read from data statements, and the program is run simply by typing it in and entering RUN. You can stop it by pressing RUN/STOP.

You can vary the effect by changing the 33 in line 50 to 13, to give a flashing border; or by changing the 32 in line 50 to 52, you can have the paper flashing.

Leave the listing as it is for both. You can also vary the effect by changing the second number in each data line. You might like to use Flasher in a Basic game to indicate a loss of a life, or use it as part of a loading routine.

```
10 PRINT"□"
20 FORA=0TO23:READ D:POKE49152+A,D:NEXTA
30 SYS49152:GOTO30
40 DATA162,0,160,200,200,208,253,160,250,200,208,253,232
50 DATA142,33,208,142,32,208,224,16,208,235,96
```

1520-word

This program for the 64 with the 1520 printer/plotter is from Chris Payne

THIS SIMPLE word-processor program allows full control of the 1520 printer/plotter's pen colour, character size, and text printing.

To change colour, type in COL and you are presented with the colour option table. To change character size, enter COLU (for COLUmn).

Text is entered one or two lines at a timee, and is then printed out. With a choice of twenty, forty or eighty column mode, four colours and upper or lower case, you have a reasonable word processor; but the program will not accept commas, quotes or colons. Try entering CBM-D (Commodore key and D) as an alternative to a comma.

```
10 POKE53280,6:POKE53281,14:
   POKE646,1
20 PRINT"s1520 MINI WORD-PRO
   OPTIONS."
30 PRINT"Q    0) 80 COLUMN MODE"
40 PRINT"Q    1) 40 COLUMN MODE"
50 PRINT"Q    2) 20 COLUMN MODE"
60 PRINT"Q    3) 10 COLUMN MODE"
70 GETA$:IFA$=""THEN70
80 IFA$>"3"THEN70
90 C=VAL(A$)
95 IFCH=1THENCH=0:RETURN
100 PRINT"sCASE OPTIONS."
110 PRINT"Q    0) UPPER CASE"
120 PRINT"Q    1) LOWER CASE"
130 GETA$:IFA$=""THEN130
140 IFA$>"1"THEN130
150 L=VAL(A$)
160 PRINT"sCOLOUR OPTIONS."
170 PRINT"Q    0) BLACK"
180 PRINT"Q    1) BLUE"
190 PRINT"Q    2) GREEN"
200 PRINT"Q    3) RED"
210 GETA$:IFA$=""THEN210
220 IFA$>"3"THEN210
230 CO=VAL(A$)
235 IFCH=1THENCH=0:RETURN
240 PRINT"sCOMMANDS WITHIN WORD-PRO."
250 PRINT"Q    END - QUIT"
260 PRINT"Q  COLU - CHANGE COLUMN MODE"
270 PRINT"Q   COL - CHANGE COLOUR"
280 PRINT"QQPRESS ANY KEY TO START."
285 GETA$.IFA$=""THEN285
290 PRINT"s1520 WORD-PRO READY."
300 OPEN4,6:OPEN2,6,2:OPEN6,6,6:OPEN3,6,
3
310 OPEN5,0
320 PRINT#2,CO:PRINT#3,C:PRINT#6,L
330 INPUT#5,B$
340 IFB$="END"THENCLOSE2:CLOSE3:CLOSE4:C
LOSE5:CLOSE6:END
350 IFB$="COLU"THENCH=1:GOSUB20:PRINT#3,
C:GOTO330
360 IFB$="COL"THENCH=1:GOSUB160:PRINT#2,
CO:GOTO330
370 PRINT#4,B$
380 PRINT:GOTO330
400 REM * WORD-PRO DOES NOT ACCEPT *
410 REM * COMMAS, QUOTES AND COLONS*
420 REM * USE CBM-D, CBM-I & SFT-@ *
430 REM * RESPECTIVELY.          *
```

THE EASYMUSIC program published in the February issue was from Graham Pullen of Southwick, Surrey. Sorry we neglected to credit you, Graham.

The Software File is always looking for good listings for the Vic 20, C16, Plus/4, 64 and 128. We pay £10 for short listings, more if the program is worth writing up as a longer article. Read the conditions below and send in your own programs — originals only, please — and we'll let you know as soon as we can whether we want to print your program.

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Phil Rogers 'Peek & Poke', "Popular Computing Weekly" Jan. 1985 (Vol. IV, No. 1)

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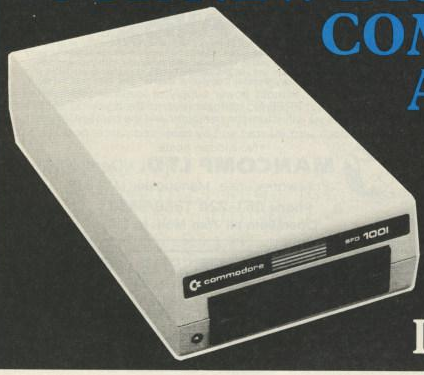

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Use the monitor

I HAVE a C16, and am wondering if there is any way to stop the screen flashing during loading. I would like to be able to produce a loading screen, and also play music while loading. Also, how do you program multicolour UDG's?
Michael Chambers
Ryde
Isle of Wight

THE FULL answers to your questions are too complex to give in great detail. You will need to learn to use the built-in machine code monitor, so get hold of some general C16 programming books, and something on machine code. In general terms, you should copy the relevant cassette loading routine into RAM using the monitor and the Transfer Memory command. The screen blank can then be eliminated from the code using a JMP, then your program can be loaded or saved using the amended routine, with a final jump to the normal routine at the end of the cassette load routine.

To use music while loading, the music routine is patched into the system via the interrupt, using an amended CHRGET routine, and returned to normal after cassette use.

Multicolour UDG's use a lot of system memory, but if you want to find out more get *The Working Commodore C16* by David Lawrence, published by Sunshine Books at £6.95. The advantages and disadvantages of multicolour mode are dealt with on page 61, but bear in mind that once you have combined this with your own UDG's ther will be very little memory left for the rest of the program.

Out of quotes

WHEN A quotation mark is printed on the screen using sthe 64, the machine goes into "quote mode", and cursor controls and other control symbols print as reverse-field graphics. But sometimes I want to print a quote mark from inside a program, yet I want to avoid going into quote mode. Is there any way this can be done?
J Karns
Plymouth
Devon

WHEN A quotation mark is printed to the screen, the value of memory location 212 (on both the 64 and the Vic) is changed to 1 from the normal 0, and the machine goes into quote mode. To prevent this happening, all you have to do is use POKE 212,0.

Collision course

I AM writing to ask how to detect collisions between characters. I have a 64 and a Vic 20 — does a simple PEEK exist for either machine?
M Grant
Bedworth
Warks

THIS FACILITY exists on the 64 when using sprites — sprite to sprite collision can be detected by reading the value in location 53278. The value obtained by PEEKing this location will tell you which sprites have collided, while sprite/data collision is detected by PEEKing 53279.

The Vic does not have sprites, so we would have to write a routine along the following lines; suppose we are dealing with single characters such a * and +.

The movement routine, whether from keyboard or joystick, will give a location for the * to move to. The location is PEEKed to see if it is occupied by a +, and if so then we have a collision. If the character is a shape consisting of several single characters, then you would have to check whether the boundary characters have collided. Of course, this sort of game would be better programmed in machine code!

Bulletin boards

I HAVE just finished writing a bulletin board program for the 64. The board runs on 300 baud, and has many facilities such as electronic mail and downloading using the XMODEM protocol. But there is one problem; loading a sequential file from disk. I discovered that when I open the RS232 (user I/O port) the speed at which the disk loads the file drops drastically. The way I load files is similar to this subroutine;

```
10 OPEN 5,2,3,chr$(6)+
   chr$(0): REM open file 2;
   300 baud 8 bit, no parity
20 OPEN 8,8,8 "TEST" :
   REM open file 8 to disk
   drive
30 GET#8, A$: REM get
   letter from disk
40 PRINT#5, A$;:
   PRINTA$: REM send
   letter to disk and modem
50 GOTO30
```

I could use an input instead of a get in line 30, but this won't print all the characters.

Would you tell me if it is possible to open an RS232 channel on 300 baud and keep my disk drive working the normal speed?
N Gaddo
Aberdeen

YOUR PROBLEM is due to the way that the RS232 port operates, especially when mixing RS232 input/outputs with IEEE input/outputs (serial IEEE). The port is driven by a non-maskable interrupt, and thus will not wait for IEEE disk routines because NMI has absolute priority on the system.

This is why the disk access is drastically slowed during your program. The solution is to GET as much data as possible into memory first, and then send it to the modem all at once. Repeat the process until the loading has terminated successfully.

Incidentally, don't attempt to close the RS232 channel until all data has been transferred and the buffers are empty, otherwise the timers won't work properly. You can send 256 nulls before closing so only those are lost in such a case.

RGB and the C2N

I RECENTLY bought a monitor style TV which has an RGB input facility. Is there any way of converting the composite output of the 64 to RGB, or of accessing the video signal inside the machine before it becomes a composite signal?

My other question concerns a fault on the machine; since inadvertently connecting the C2N with the play button depressed, whenever a load or save is attempted the system goes straight into the routine without giving any screen message, as if the play button were already depressed. This did not cause any problems until recently, when I bought a piece of software which will not run unless the STOP button is pressed. Is there a software means of overcoming the fault, or can you suggest how it might be repaired?
N Robinson
Tattersall
Lincoln

SO FAR as the monitor is concerned, RGB is not produced in the 64's video chip, and there is no way of converting the signal to RGB. Also, since the signal is changed to composite within the integrated circuit, there is no way to access it at that point. You will just have to give up on that one!

On the cassette deck, it sounds as if you have damaged the processor which deals with sensing the position of the cassette deck buttons, by short circuiting the pins while connecting the deck lead. This should serve as a reminder to readers of the dangers of connecting any peripheral while the power is switched on! You will need to have your 64 serviced, either by a local dealer or by Commodore. Contact Commodore on 0536-205555 for an estimate of the cost of replacing the IC.

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WIN ★ WIN ★ WIN

Robtek's latest plug-in technological marvel for the 64 allows you to make games easier by disabling sprite collisions — now you can win one!

NOW, FROM Robtek, this is the add-on you've been waiting for — the **Game Killer!**

Now you can play most of your favourite 64 games with an unfair advantage. The Game Killer, a cartridge which simply plugs into your 64 before you switch on, disables the sprite collision routines on which most arcade games rely. Imagine playing your favourites IMMUNE to the bombs and missiles of the enemy — able to WALK THROUGH WALLS, or to IGNORE deadly obstacles! You can now see what happens at every level of a game without needing the skill or patience to play all the way through it — then switch out the Game Killer once you've reached the level you require, and play the game normally.

By experimenting with the Game Killer you should be able to gain an unfair advantage on most arcade games — though remember that not all rely on sprite collision routines!

The Game Killer will cost £14.95 in the shops, but we have TEN to give away in our easy-to-enter contest.

All you have to do is tell us WHAT game you would like to "kill", and why. The ten funniest entries will win the Game Killer cartridges. Send your entry on a POSTCARD, or the back of a sealed envelope, to Game Killer, Commodore Horizons, 12/13 Little Newport Street, London WC2H 7PP, to arrive by the last working day of March. Winners will be announced in the May issue, and all normal competition rules apply. ■

The Game Killer has three functions:

- By pressing the button you can disable ALL sprite collisions.
- By pressing the button while holding down the CBM key you can disable only sprite to sprite collisions.
- By pressing the button while holding down the CTRL key you can disable sprite to background collisions.

You can then turn on the collision routines again by pressing the cartridge button a second time.

PREVIOUS WINNERS

THE FIFTY winners of the English Software **Topper the Copper** contest have now been selected. If you've won you will have received your prize by now — if not, thanks for entering — some of the Sherlock Holmes captions were hilarious. Sorry we don't have space to publish the whole list.

The winners of the Activision **Little Computer People** contest are: J Hall, Woodford Green; P Rogers, Ashurst; B Land, Harpenden; E Mason, Hove; B Doick, Mannheim; S Jenkins, Llanelli; S Wood, Wombourne; J Croucher, Hayes; P Phillips, Plymouth; C Fairlie, Tamworth; G Lock, Kirby; C Hudson, Liverpool; J A Quinten, Norwich; R C Stambrow, Plaistow; R Harpham, Haydon; S Sedgewick, Swansea; M Headroom, Ealing; S White, Bordon; A Ward, Halesowen; C W Hawkins, Bicester. The most popular people you wanted to live inside your computer were gorgeous pouting **Samantha Fox**, for a variety of indecent reasons with which The Editor fully agrees, and poor old **Clive Sinclair.**

The ten winners of Robcom Turbo 50 cartridges in our wordsearch contest are: R Allen, Frating; K Doyle, Port Talbot; D W Day, Woodford Green; R A Clutton, Whitchurch; J Hall, Woodford Green; C Chase, Barnham; S Sweet, Sutton Coldfield; A Barrett, Hornsey; J A Thomas, Telford; and T Roche, Poole. Congratulations to the winners; and to the losers, you can still try this month's contest to win a Robtek Game Killer!

Gemini & CentreSoft PRESENT

OFFICE MATE

With over four years experience of providing practical software solutions for business and home applications, Gemini have put together a selected range of famous titles for the Commodore 64 and 128 in TWO special packs, at VERY SPECIAL prices. These super value packs contain all the serious application software you're ever likely to need for your CBM, from word processing and database management to a complete professional business accounting system. Gemini's 'OFFICE MATE' and 'OFFICE MASTER' are here now - put that computer to work!

OFFICE MASTER

Word Processor

A fully-featured word processor program with text formatting - right justification - adjustable page length - text centering - output of all or part of text to printer - selective saving - file concatenation - block move - block delete - reverse print - graphics print - double width print - sorting - left and right margin selectable - word count - search and replace.

Mailing List

This program will enable you to keep a record of names and addresses and then print, examine, sort and find them, all with special selection techniques. Featuring the famous Gemini 'search-key' system, you have the option of creating your own dedicated coding routines for each name on the file. For example, on most mail systems you are only given the standard headings such as name, street, town, county, etc. but with our system, you could for example find all companies listed that have a turnover in excess of a certain figure, or all subscribers who are behind with their subscriptions, or all people eligible for a Christmas card this year! A full range of utilities is callable from the menu including, ofcourse, label printing.

Database

Superior file management system with features found only with packages costing much, much more. Completely user-definable data entry format - colours definable - advanced mathematics using built-in machine code expression evaluator - fast sort on numeric and string fields - extensive searching with 'wild card' capability - user-definable data summaries - simple on-screen editing. A really POWERFUL database!

Home Accounts

Designed as a complete home accounting package, this program allows the user to set up and maintain a budget for items of household expenditure and compare actual with budget ,either numerically, or with the aid of chart graphics. A complete bank account routine is included, together with standard expenditure categories which may be changed to suit.

- Word Processor
- Database
- Mailing List
- Home Accounts
- Extensive Documentation

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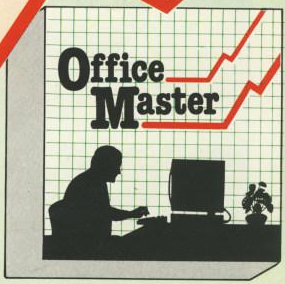

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General System Overview

The Gemini cash book package for the Commodore 64/128 microcomputer is designed for a hardware system consisting of:

1. Commodore 64/128 microcomputer.
2. 80 column printer.
3. Cassette or disk data storage.

Please note that running the program on disk will not change the way that the program works, but you will have the benefit of far greater speed and reliability for the loading and saving of files that a disk system provides.

There is a total of 199 nominal accounts, a large number of which may be defined by the user. You may have up to four cash control accounts, six bank control accounts, one sales ledger and one purchase ledger control account.

The program will store a data file consisting of:

1. The account titles.
2. The current cumulative balance on each account (debit or credit).
3. The net movement on each account for every month of the year.
4. VAT net sales and net payments figures, which are automatically created and maintained by the program.

This same data file is used by the FINAL ACCOUNTS program. The 'VAT FILE' which accompanies this package is designed primarily for those users on the Retailers special VAT schemes.

The main features of the CASH BOOK program are as follows:

1. Double entry routines for transactions through the cash/bank accounts and sales/purchase ledger control accounts.
2. Journal facility for the initial set up of accounts, or for adjustments to any of the accounts.
3. The facility to produce the following screened or printed reports:

(a) Listing of all the nominal account titles.
(b) Monthly transaction summaries.
(c) A trial balance whenever required.
(d) Screen VAT memo account balances (sales/net purchases, and VAT accounts).
(e) A batch printing facility which provides details of all the transactions entered in the current run of the program.

4. The facility to extract regular management information such as cash/bank balances, debtors and creditors, sales, overheads, etc.
5. The program interfaces with the Gemini FINAL - ACCOUNTS program to enable Trading and Profit and Loss accounts and Balance Sheet to be produced whenever required. Comparative or budget figures can be shown alongside the actual figures using this program.
6. Screen prompts throughout the program to facilitate ease of use.
7. Storage of VAT information to assist in the preparation of periodic VAT returns.
8. Error trapping routines to minimise input errors.
9. The facility to handle the financial transactions of sole traders, partnerships, limited companies, clubs, etc.

Users registered for VAT are reminded that it is a statutory requirement to inform their local VAT office when they change their accounting records on to a new computerised accounting system.

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